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Children and Alcohol

A developmental study in Glasgow

by Gustav Jahoda
assisted by
Joyce Cramond

Volume I

An enquiry carried out on behalf of the Health Education Unit of the Scottish Home and Health Department

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G.J.
J.C.

SUMMARY

Introduction

1. This study was designed to trace the development of concepts and attitudes relating to alcohol among children in Glasgow. There has been almost no research in this area, despite growing concern about excessive drinking and alcoholism. The reason for this neglect is probably in part the difficulty of conducting such research with children; but even more it is due to the widespread belief that children are innocents with regard to alcohol, so that no profitable outcome could be expected. The standpoint taken here is that such a belief is profoundly mistaken, and that an understanding of early development in this sphere may be crucial for health education aiming at moderate drinking.

2. Alcohol forms part of the environment of the vast majority of children in our society, and they have to learn to adapt to it. The learning concerns on the one hand the characteristics and effects of alcohol, and on the other approved and frowned-upon ways of using alcohol. Since there is at present little if any formal teaching, most of it is derived from the behaviour of other people. This study provides an account of the effects of this process over the period from the early to the later years of primary schooling. The results are presented in two sections. The first deals with findings obtained through specially devised experimental methods, the second with children's answers to questions and spontaneous talk; the effects of some social and demographic factors are considered. Then follows a discussion of these results, leading to an assessment of their implications for health education.

Methods

3. Children can often demonstrate their knowledge by action even when lacking the ability to express it in words. Hence a series of game-like tasks were elaborated which made it possible to elicit the ideas and attitudes of even young children concerning alcohol; these were supplemented by a standard set of questions and careful noting of spontaneous comments. Each child was seen individually on two separate occasions, and it was only during the second of these meetings that the investigator explicitly mentioned alcohol. The final sample consisted of 240 children equally divided by sexes and into three age groups (6, 8, and 10). The sample was also balanced according to social class, religion and the time of testing (before and after Christmas). Within school classes selection was random.

Results—Part I: Main experimental study

4. *Recognition of smells.* This was an objective measure of one aspect of children's familiarity with alcohol. They were given nine substances to smell, including beer and whisky. At age 6 some two-fifths were able to identify at least one of these as an alcoholic drink, and this proportion rose to three-fifths by age 10. Moreover, there were indications that this measure considerably underestimated familiarity with alcohol, as most children were just not good at recog-

nizing *any* smells (even such distinctive ones as vinegar). This technique thus provides conclusive evidence of early contact with alcohol.

5. *Judgment of photographs.* The aim of this experiment was to obtain an indirect assessment (i.e. without questioning) of children's attitudes to people's drinking behaviour. Photographs of people engaged in a variety of activities were shown to the children, some of those portrayed being seen as drinking or smoking. Children were then asked to sort the photographs according to how much they liked or disliked the people pictured. The influence of personal characteristics was eliminated making it possible to infer the net effect on liking of drinking and smoking behaviour. It emerged that from initial neutrality children's judgments of drinkers (and smokers) became increasingly unfavourable with rising age; also both boys and girls had a more negative attitude to women drinkers.

6. *Perceived likes and dislikes.* The object of this procedure was to find out what children regarded as the normal or usual approach to drink by three categories of people or social "roles", namely children, women and men. At what stage do children become capable of differentiating between the alcohol usage of people in these roles? A range of different activities recorded on tape were played to the children while a child, adult female or adult male doll was stationed in front of them. Their task was to press a button to indicate how much the doll liked or disliked doing any of the recorded activities, which included various forms of drinking and also smoking. Results showed that even the youngest children had clear notions about adult behaviour relating to drinking and smoking; in other words, they were aware of the "social norms". Subsequent detailed analysis suggested that their perceptions varied somewhat according to the drinking behaviour experienced within the home.

7. *Concept task.* This was designed to answer the question at what stage children come to realize that all alcoholic drinks have something in common which distinguishes them from non-alcoholic beverages; in other words, when do they master the concept of alcohol? After a preliminary training task children were presented with an array of bottles, half of which were alcoholic drink bottles; they were asked to divide them into two groups and explain the difference between these. Some two-fifths even of the 6-year-olds performed the grouping correctly. Thus as early as 8 most children can demonstrate their grasp of the alcohol concept in action, without however knowing the actual word "alcohol". In fact less than a third of the oldest children were able to use this term.

8. *Drunkenness film.* The problem here is to discover when children begin to understand the physical manifestations of excessive alcohol consumption. For this purpose they were shown a film of a drunk reeling in a street and questioned about his behaviour. As early as age 6 only one in seven of the children failed to interpret the behaviour correctly as being the outcome of drinking, and there was additional evidence indicating that this learning occurs during the pre-school years. A large majority of the children of all ages reported personal encounters with drunks.

Results—Part II: Verbal responses and spontaneous comments

9. *Direct experience of alcohol.* Typically, the first personal contact with alcohol occurred in the home and only the older children referred to places outside such as the houses of relatives or parties. About two-fifths of all the children claimed to have tasted an alcoholic drink of some kind. Surprisingly, this

proportion remained constant with increasing age, though there was a tendency for younger children to name drinks of lower alcoholic content. It would seem therefore that children who are allowed a taste of alcohol at all are given this when still quite young, and what is likely to change with age is the amount permitted, but no information about this was obtained. More boys than girls reported having tasted an alcoholic drink. Generally, the child is most likely to have been given his first drink in the home by the father.

10. *What children heard people say about alcohol.* Some two-thirds were unable to recall anything of the kind. About one-quarter reported negative statements such as warnings about harmful effects and instructions not to drink; they were frequently told that alcohol is only for adults. The remainder produced either neutral and factual comments, or positive ones; for instance, that certain kinds of drinks were particularly good. Parents were the main source of information and attitudes about alcohol, either through explicit exhortations or implicitly through their own manifest drinking behaviour. At some point or other during the procedures some four-fifths of the children made some comment from which it was possible to infer that either one or both parents consumed alcohol.

11. *Children's idea about drunks.* Here again a majority of the children could not think of anything anyone had told them about drunks. About one-third reported negative aspects such as warnings to avoid drunks as dangerous or aggressive, and appeals not to get drunk when older. This must be viewed in the context of another finding: during the film, some two-fifths of the children thought that being drunk was a pleasant state; the remainder, among them a disproportionate number of working-class children, regarded it as unpleasant. About one-quarter of the children spontaneously mentioned drunkenness in the family, usually referring to the father. It is thus evident that first-hand experience played an important part in the formation of the ideas and attitudes of some children.

12. *Future orientation.* Asked whether they themselves expected to drink alcohol when they were older, little more than half overall answered with an unqualified affirmative. However, this conceals a trend whereby 70% of the youngest children as against only 41% of the oldest ones said they would drink. There were no differences in intentions by social class or religion. The implications of this seemingly paradoxical age decline are considered below.

Discussion

13. The results of the study clearly support the expectation that children begin to learn about alcohol early in life, even before primary school. By age 6 a majority recognize the behavioural manifestations of drunkenness, and many are capable of identifying some alcoholic drinks by smell alone; they also perceive people in different social roles to like alcohol in different degrees. By the age of 8 most children have attained a mastery of the concept of alcohol, and in general the rate at which children acquire a broad understanding in this sphere was greater than had been anticipated.

14. The development of attitudes and evaluations presents a different and somewhat more complicated picture. They are slower to emerge, and the youngest children can hardly be said to hold any firm attitudes towards alcohol and drinking; their comments were apt to be either neutral or mildly favourable. With increasing age the proportion of definitely negative attitudes rises steadily;

this applies equally to responses to direct questions, the outcome of indirect measures and the expressed intention to drink in future.

15. What is the meaning of this trend towards more negative attitudes? One possibility that suggests itself is that it might be accounted for in terms of acquisition of facts about the nature and dangers of alcohol. Scrutiny of the responses lends little support to such a view. On the contrary, children seem to be conspicuously lacking in adequate information about the effects of excessive consumption of alcohol, with the exception of their ideas about drunks. Even these tend to be severely stereotyped, and there is little indication that children relate them to their own future drinking behaviour.

16. An interpretation which fits the facts better is that children gradually learn that alcohol is frowned upon by people in such institutions as school and church. It would then not be surprising if, in an authority setting like the school, they responded in terms of their awareness of the prevailing social disapproval. Does this mean that they showed merely external conformity, their private feelings remaining neutral or even favourable? Or has there been a genuine change of attitudes with many of them? The data make it possible to eliminate the former alternative. This is because the results based on indirect measures exhibited the same trend towards a more negative view of alcohol than those obtained from direct questioning. Since the object of the indirect measures was not apparent to the children, their responses must have reflected genuinely held attitudes.

17. There was of course no uniformity in the children's outlook, so that some of the older ones maintained a positive orientation towards alcohol. But whatever the stance, it was often possible to detect signs of some conflict over the issue, whose nature was to some extent revealed by a more detailed examination of two deviant subgroups: those whose parents were either heavy drinkers or total abstainers. From this it may be concluded that attitudes are a function of the complex interplay between the influence of frequently inconsistent parental models, that of "respectable" sources of authority and probably also of more elusive factors such as the mass media. A multiple regression analysis provided further insights into the variables associated with children's future intentions about drinking alcohol.

18. It has been shown that between the ages of 6 and 10 the proportion of children expressing negative attitudes to alcohol increases, and that of children saying that they themselves will be drinking in future decreases. Yet it is well-documented by many studies, including the parallel report by Davies and Stacey on adolescents, that by the age of 14 a large majority of both boys and girls have taken alcohol; and thereafter they continue to do so in greater numbers and with increasing (and in some cases disquietening) frequency. How can one account for this apparently complete reversal? As no children between 10 and 14 were actually studied, one can only venture some conjectures. The complexity of the determinants of attitudes towards alcohol and future drinking intentions during the later years of primary school has been outlined. Such complexity is an indication of potential instability as the balance of determinants shifts with the onset of adolescence. Adherence to the values proclaimed by authority figures becomes relatively less important, while the attraction of the models presented by the peer group increases; and there is a kind of rebellion against parental authority whereby the youngsters cease to pay undue attention to what the parents say, and instead begin to do what they do.

Implications for health education

19. The purpose of health education is to encourage moderation in the use of alcohol by young people, and the contribution of the present study towards this objective is a two-fold one. First, it demonstrates the inadequacy of the widely held view that young children neither know nor care about alcohol; second, it traces in some detail the development of ideas and attitudes, thereby providing a foundation upon which a sound health education policy may be built. Being essentially factual, the study as such cannot determine what such a policy ought to be, nor even what methods would prove most effective. It does, however, suggest a number of practical ideas which will be outlined.

Target populations

20. The major conclusion which emerges is that attitudes towards alcohol and drinking are gradually taking shape during the years from 6 to 10. It is probably much easier to make some impact during that formative period, when attitudes still remain rather fluid within a context of frequently contradictory influences. The evidence of the parallel adolescent study shows that by the early 'teens attitudes have already begun to harden and habits of drinking behaviour are being established, so that there is far greater resistance to change. All this clearly points to the desirability of starting health education about alcohol in the primary school. The common objection to such a proposal, namely that primary school children would be incapable of understanding, is shown to be false by the present findings. By the age of 8 a majority of the children have acquired the concept of alcohol, and are able to understand communications couched in suitable language.

21. If primary school children are to be exposed to health education, then their parents who play such a vital part in influencing their attitudes clearly ought to be among the targets as well. If the practical difficulties involved in such an effort can be overcome, special consideration might be given to certain sub-groups within this population. These would be parents and children in families where there is either heavy drinking, or (surprisingly) where they are total abstainers; this is because the findings suggested that children in both these types of families may experience special problems.

Modes of approach

22. The amount of accurate knowledge about alcohol possessed by the children, including the older ones, was minimal. It consisted in the main of stereotyped notions about alcohol being bad, though this often meant "bad for children and all right for grown-ups". While there was little improvement in knowledge with increasing age, the topic tended to become more emotionally loaded and thereby interesting for the children. There is thus a need to provide more adequate information about alcohol, and this would seem to be the first task of health education for which it is also best equipped. The objection that primary school children would not be able to understand anything about alcohol has been shown to be unfounded.

23. Giving the children facts about alcohol is important, but not enough. Their future behaviour will be affected to some extent by their knowledge, yet probably far more by their feelings. Owing to the fact that children become exposed to contradictory evaluations of alcohol from different parts of their social world, the topic of alcohol tends to become tinged with elements of conflict and guilt.

Behaviour in relation to alcohol will be largely determined by the manner in which this uncertainty is resolved; and this in turn will depend on the kind of person children will aspire to become, the social models they choose to follow and the social pressures they accept or reject. In such a complex sphere the role of health education is not easy to define. Sermonizing is likely to prove self-defeating, and there is empirical evidence suggesting that attempts to frighten children into moderate drinking are unlikely to meet with success. One possible strategy would be to try and "inoculate" children against the pressures towards drinking which will be directed at them from both peer groups and mass media; and this could be done by raising their level of awareness of the nature of such pressures. The best practical step would be to provide an opportunity, which children generally lack, of discussing their ideas and feelings in an informal and permissive atmosphere.

24. Ideally parents ought to engage in such frank discussion with their children, but unfortunately there is no indication that this happens. On the contrary, parents contribute a considerable share towards the children's concern and confusion by the frequent glaring discrepancies between their preaching and their practice. The contribution of health education directed at parents should be to offer more factual information for parents themselves, and also to suggest guidelines about ways for dealing with the issue of alcohol with children of different ages.

The role of the health educator

25. It is difficult to be certain what kind of person should undertake the task of health education. There appears a tendency, increasing with age, for children to believe that official institutions like the school condemn alcohol. Being perceived as embodying the values of the institution, the teacher is therefore probably not the most suitable person to perform this task. Moreover, the frequent disposition during adolescence to reject what are regarded as "adult establishment" values also argues against anyone who is viewed as falling within this category. What is required is a person seen as neutral and detached. and who has the opportunity of meeting the children often enough to become a familiar figure to whom they can give their confidence.

26. The person doing this work ought to be a general health and not merely alcohol educator. The evidence indicates that development of children's ideas and attitudes concerning smoking closely parallels that relating to drinking. At the same time it would be unfortunate if the health educator were regarded as the person who is always against something or other. Rather, health education concerning alcohol and smoking would best be embedded within a wider programme, thereby making it evident that concern is for the well-being of the individual as a whole and not just the prevention of abuses.

INTRODUCTION

Public concern with alcoholism and excessive drinking has led to numerous studies all over the world, so that there is now a vast literature on drinking habits and attitudes of adult populations in many countries and cultures. Since the pattern of drinking behaviour, including "problem drinking", may develop during adolescence there has been an increasing interest in research on adolescents in their 'teens, reviewed by Stacey and Davies (1970). On the other hand there appears to be an almost complete absence of systematic inquiry concerned with children and alcohol. An extensive search of the literature yielded merely one single study conducted in Poland some 60 years ago which appears to have been based on direct contact with children (Swiecicki, 1967). For the rest, what scanty information there is about childhood seems to be derived from retrospective questioning of adolescents or even adults; and owing to the fallability and selectivity of long-term memory one cannot place much reliance on the results.

There are perhaps two main reasons for the neglect of work with children in this sphere. The first is that exclusive reliance usually has been placed in this line of research on survey methods employing questionnaires—a powerful tool for studying people equipped with the necessary skills, but unsuitable for children. The lower limit of investigation is probably around the age of 12, as in a recent large-scale American survey by Gossett and others (1971) who found roughly one-third of their 12-year-olds reporting consumption of alcoholic beverages—a proportion that rose to about half by the age of 13. Such findings are tantalizing, as they clearly point to a prior history of contact with alcohol. Until the recent past the sheer technical difficulties faced by anyone wishing to go beyond verbal questioning may well have constituted an insuperable obstacle. Current work in developmental psychology, much of it originally inspired by Piaget, frequently involves the elaboration of a variety of non-verbal techniques for the study of children's ideas and attitudes; and, as will be demonstrated later, many of these readily lend themselves to adaptation for examining children's behaviour in relation to alcohol.

The second reason suggested here is of an entirely different nature. There appears to be a somewhat irrational persistence of the notion of "childish innocence", of the kind Freud had to contend with in connection with sexuality. It seems to be widely taken for granted that children, by and large, neither know nor care about alcohol, so that research would be unprofitable. Now even ordinary everyday-life observation of children, if done with an open mind, is sufficient to dispel any illusions of "childish innocence" in relation to alcohol. Most children encounter it, directly or indirectly, from an early age onwards. In Scotland, where some mothers are still said to adhere to whisky as a remedy for teething troubles, it may be said to start in the cradle! Children see other people drinking, usually in their own family; they ask questions and presumably note the effects of drinking on behaviour—though this is an empirical question to be examined subsequently. They may also be given alcohol to taste, or do so without permission when it is around. In short, alcohol forms part of the environment of a majority of children in our culture, as in most others. There is some slight evidence for this in the extensive vocabulary study by Burroughs (1957); he studied the words used spontaneously by children aged between 5 and 6½ and his lists show that some of the children employed the words "beer" and, to a lesser extent, "whisky". Learning about alcohol is part and parcel of the child's gradual adaptation to the physical and social aspects of his environment, which begins long before adolescence.

The object of the present study is to trace the development of concepts and attitudes concerning alcohol among primary school children in Glasgow. This is essential if one wishes even to consider the possibility of a health education programme aimed at the primary school population. Thus it would be futile to attempt conveying information to children before the age at which a majority has acquired the *concept* of alcohol, though this is not necessarily the same as knowing the word; moreover, it is useful to discover for this purpose what attitudes, if any, children at different ages have formed towards the consumption of alcohol. In addition to this utilitarian aim, it is hoped that the study also offers a general contribution towards the understanding of children's cognitive development.

It will perhaps be helpful to indicate briefly the general plan of presentation in this report, which begins with an account of the sample and the overall research strategy. Then follows a first, mainly descriptive, part in which each of the specially devised methods is fully outlined, together with the results obtained by the particular method. Readers who are not concerned with the technical details can skip the former and confine themselves to the actual results. The second part deals with children's verbal responses and the effects of some social and demographic factors: this is followed by a discussion including an account of some of the relationships among different measures. The report concludes with a review of the implications of the findings with particular reference to Health Education.

METHODS

As has already been indicated, the chief methodological problem in this area of research arises from the fact that there is no simple correspondence between statements and children's cognitive processes such as can be assumed with adults. Young children often "know" a good deal more than they can readily verbalize, and sometimes their words suggest to the adult a degree of understanding which may actually be lacking. It is therefore necessary to construct situations in which children's ideas can be translated into actions or, as Piaget has it, "Operations". Accordingly, the research methods consisted in the main of game-like tasks which hold children's interest and are enjoyed. Some of these were adapted from previous studies (e.g. Jahoda, 1959; Tajfel *et al.*, 1970), but most were specially devised. Several months were then spent in pilot work, testing and suitably modifying the various procedures.

Performance of the tasks stimulated children to spontaneous talk, which yielded valuable insights into their attitudes and modes of thinking. Naturally there were great age and individual variations in the tendency to verbalize, so that this material does not readily lend itself to statistical comparisons. However, standard questions (given in Appendix A) were asked at various points throughout the procedure; and for the purpose of global analysis all information pertaining to certain facts was combined irrespective of the point at which it came to be elicited.

The actual work with the children was undertaken by two investigators. One of these was the main research worker on this part of the project, a psychologist fully familiar with the procedures as she had helped to develop them in the pilot stage; the other was a part-time assistant experienced with children but without psychological qualifications. She was trained for a month prior to the study. Subsequent checking indicated that in spite of this extensive training the part-time worker had been less effective. In particular, she turned out to be less skilled in obtaining free responses from the children, so that she had disproportionately high entries in the "no information" category; there was also a significant tendency for the children tested by her to present themselves in what might be called a "socially acceptable" light; and this, of course, in spite of the fact that the samples seen by the two workers were carefully balanced on all relevant variables. Fortunately such differences did not emerge on the standardized test operations. The resulting mild bias is therefore in a conservative direction—i.e. on the reasonable assumption that the findings obtained by the more highly skilled worker may be taken as the yardstick, the children will appear slightly less informed about alcohol and more inclined to hold socially approved attitudes about it than is in fact the case.

Sample

Owing to the need for intensive individual testing of each child, a fully representative random sample of children would have been impracticable. Therefore a purposive sample was constructed incorporating some of the major demographic and social variables considered as being potentially relevant, namely social class and religious denomination. Social class was determined entirely by the characteristics of the school's catchment areas and, since these are not uniformly homogeneous, only a rough approximation to a social class division between "middle" (MC) and "working" (WC) was achieved; moreover, what will for the sake of brevity be called the "middle" class sample consisted largely of children of white collar workers rather than of professional or managerial middle class. Altogether, four relatively homogeneous areas were selected, two of them WC and two MC; within each of them pairs of schools were located, one member of each pair being Roman Catholic and the other non-denominational. From all the schools class registers were obtained, which provided a sampling frame based on age and sex. The age groups chosen were 5½–6½, 7½–8½ and 9½–10½. The final stage of sampling was then carried out randomly within these groups. A total of 288 children was selected with a view to final sample of 240, allowing for losses through absenteeism. A few children proved unable to cope with the demands of the tasks and had to be replaced; these constituted only 2%.* A further 13% were repeatedly absent or had left the school altogether. The general structure of the sample is shown in Table 1, which comprises only half the actual sample. This is because another control was built into the sample, namely time of testing. Since the Christmas vacation is a period when children are likely to be particularly exposed to alcoholic beverages, half of the sample was tested before and half after that vacation.

TABLE 1
Sample design

Ages	Middle-class area				Working-class area			
	Catholic		Non-denom.		Catholic		Non-denom.	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
5½–6½	5	5	5	5	5	5	5	5
7½–8½	5	5	5	5	5	5	5	5
9½–10½	5	5	5	5	5	5	5	5

Procedures

Each child was tested in two separate sessions, each of about 30 minutes with an interval of some four weeks. This avoided tiring the younger children unduly; the interval was also sufficiently long for them to forget the details of what they had done previously, thereby making it possible to build reliability checks into the design. The general structure of the two sessions is set out below.

Session I

English Picture Vocabulary Test (EPVT)
Recognition of Smells
Judgment of Photographs I
Perceived Likes and Dislikes I

---

* Throughout this report percentages will be rounded to the nearest whole number.

Session II

Judgment of Photographs II
Perceived Likes and Dislikes II
Concept Task
Drunkenness Film

The sequence of administering the tasks remained constant, and no attempt was made to control for order effects. The reason is that other factors were considered more important—e.g. Judgment of Photographs also served as a training task for the response modes in Perceived Likes and Dislikes. Above all, the content was planned so that no actual mention of alcohol or related topics was made by the experimenter during the first session. This was to ensure that children remained unaware of our interest in alcohol until the second session, when this topic came to be more directly broached. This plan had the further advantage of enabling the investigator to establish a good relationship with the child, so that he would not be faced with a complete stranger in the second, more critical session.

RESULTS

I Main experimental study

1 English picture vocabulary test (EPVT)

This is a standardized test which was used as an opening gambit for two reasons: it is relatively undemanding and enjoyable for the children, and it provides at least a rough measure of children's ability. Its efficiency for the latter purpose is limited, as working-class children in particular tend to be handicapped in tests exclusively dealing with vocabulary. Even allowing for this, it is clear from the right-hand side of Table 2 that the overall level of performance in this sample was relatively low. The EPVT quotient of nearly two-thirds of the children was in the bottom half of the distribution, and only 1% scored above 120. Boys were slightly superior to girls, which is a characteristic of this test and was also found in another Glasgow study (Cheyne and Jahoda, 1971). There were no significant differences in performance according to religion. Middle-class scored significantly higher than working-class children, thereby supporting the validity of the division into these two social categories. The main point to be emphasized in view of subsequent findings is that the sample as a whole was well below average in EPVT scores.

TABLE 2

EPVT quotients by social class

EPVT quotients	Social class		Total sample	
	Middle	Working	*N*	%
121+	3	0	3	1
101–120	56	29	85	36
81–100	53	60	113	47
–80	8	31	39	16
	120	120	240	99

For social class $\chi^2 = 24\cdot23$; df = 2; $P < 0\cdot001$.

2. Recognition of smells

The aim of this task was to determine one aspect of the familiarity children have with certain alcoholic drinks, and what associations such smells have for them. The virtue of this procedure is its objectivity and the fact that alcohol constitutes only a minor and apparently incidental part of it.

A set of nine small jars containing liquids of different smells was used. Each jar was 2 inches high and 1 inch in diameter, enclosed in a black paper cylinder so as to minimize resort to visual cues. The contents were as follows: peppermint, perfume, disinfectant, vinegar, whisky, paraffin, beer, soap liquid and coffee.

Since the odours become less distinctive over time, the contents were replaced at the beginning of each testing session. The sequence of presentation was varied to avoid any order effects.

Initially the child was told: "In here are some bottles with different things inside. I want you to smell each one and tell me if you have ever smelt it before". The jars were then held to the child's nostrils in turn with the question, "Have you smelt this one before?" and depending on the answer each was placed in one of two groups—those for which recognition was claimed, and the others (see Fig. 1). After all the liquids had been smelt, those recognized were presented once more with the statement, "Tell me something about it", which usually prompted the child either to name it or attempt an indirect description (e.g. "you put it in the heater"). Whatever the response, various questions were asked to elicit any knowledge the child might have of it. In the case of beverages, the children at this point often volunteered information about their own or other people's consumption.

After a preliminary analysis of the results it became apparent that some children were poor at recognizing any kinds of smells, not just alcoholic ones. It was therefore decided to establish an arbitrary cut-off point, namely three correct identifications; this excluded 68 children, just over one-quarter of the total sample. The responses to beer and whisky, calculated on this basis, are shown in Table 3. It is at once evident that children were far more successful in making appropriate responses to whisky than to beer; unfortunately it is not possible to draw any conclusion about relative familiarity with the two drinks, since whisky has a more distinctive smell. Nonetheless it is remarkable how rarely whisky was confused with non-alcohol substances.

TABLE 3

Responses to jars containing beer and whisky

(excluding those 68 who recognized fewer than 3 smells, hence $N = 172$)

	Beer		Whisky	
	N	%	*N*	%
On first presentation, claims to recognize content	94	55	140	81
On repeat presentation, answers to question what they can tell about it:				
a Correct name	23	13	66	38
b Name of other alcoholic drink or equivalent	20	12	48	28
c Vague responses or "don't know"	14	8	19	11
d Names non-alcoholic substance	37	22	7	4

In the present context, given that children often do not yet command appropriate vocabulary, both response categories *a* and *b* were regarded as successful identifications of "alcohol". In category *b* children used terms like "wine" or "sherry"; the youngest ones were sometimes driven to more elaborate circumlocutions such as "this is what my daddy drinks and it's not for children". Any vague or ambiguous response on which the children were unable to elaborate (e.g. "it's a drink") were of course allocated to *c*. In general, after elimination of those poor at smelling, about one-quarter ($a + b$) identified beer, and two-thirds whisky, as alcoholic drinks.

This applies, of course, to the sample as a whole, and one would like to know how the ability changes with age; curiously enough, this turned out to be a rather difficult question to which there is no clear answer from the smell data alone. The astonishingly high success rate of even the youngest children on this task led to the additional testing of a small group of nursery school children in a working-class district and, as will be seen in Table 4, even among these some managed to identify alcohol by smell. For the purpose of indicating age trends, the two sets of information about beer and whisky were combined; this is justifiable as the numbers identifying both did not increase significantly with age (13 at 6 yrs; 9 at 8 yrs and 16 at 10 yrs). The intriguing feature of the table resides in the two sets of percentages. The first is computed on the basis of the total samples, without excluding anybody; and this exhibits the regular increase with age which one would expect. However, the percentages obtained after omitting those who were able to identify, at most, two smells out of the nine remain extraordinarily steady from the nursery school to 10-year level. It looks as though most children get to know about alcohol very early in life, probably during the pre-school years, and what improves during that period is the ability to recognize smells. It would require further research to establish this conclusively, but the findings appear consistent with such an interpretation.

TABLE 4
Age trends in smell recognition of alcoholic drinks
(Nursery school data in brackets)

	Ages			
	(4)	6	8	10
Beer and/or whisky identified as alcoholic drinks	(2)	31	42	49
Neither beer nor whisky but at least 3 other smells identified	(1)	11	19	20
Fewer than 3 other smells identified	(11)	38	19	11
	(14)	80	80	80
Per cent of total sample able to identify alcoholic drinks	(14%)	39%	53%	61%
Per cent of sample after excluding those who identified fewer than 3 smells	(66%)	74%	69%	71%

3 Judgments of photographs

One of the main difficulties of research in this area is that of finding an adequate measure of children's attitudes to drinking behaviour. Verbal questioning of the kind employed from adolescence upwards is unsuitable in the case of young children, as one cannot be sure that they are able to understand the question or give meaningful answers. It is therefore necessary to resort to indirect approaches, and one of these proved highly successful in a previous study concerned with children's attitudes to nationality (Tajfel *et al.*, 1970); this was adapted for the present purpose.

The basic problem is whether children have a positive, neutral or negative attitude towards the drinking of alcohol by other people, and whether such attitudes change with age. The method used takes advantage of the fact that even quite small children are capable of classifying photographs of people according to how much they like them. In essence, the method consists of showing children photographs of people either drinking or engaged in other activities; the difference in the degree of liking they show towards these two categories provides a measure of their attitudes to drinking.

In practice the design has to be rather more complicated in order to ensure that the outcome is not contaminated by other factors, such as their like or dislike of a particular face. The material consists of two sets of photographs, each set composed as follows:

4 training photographs
20 experimental photographs
4 control photographs (duplicates of 4 experimental ones)

The experimental photographs show side views of 10 men and 10 women performing various actions; some are drinking alcohol, while others display activities such as brushing their hair, eating, or playing a musical instrument (full details are given in Appendix B). In the second experimental set the same people are portrayed, but each is now doing something different; in particular, those who had been drinking alcohol in the first set are now depicted in a non-alcoholic activity and vice versa. Generally an attempt was made to choose people of average attractiveness with no specially outstanding features and wearing neutral clothing. Three different sequences of presentation were used to obviate any order effects, and the four control pictures made it possible to check the consistency of the responses. There were also four boxes marked respectively LIKE VERY MUCH; LIKE A LITTLE; DISLIKE A LITTLE; DISLIKE VERY MUCH; for the youngest children who were just beginning to learn to read, a large L, a small L, a small D and a large D were substituted for the writing.

The procedure during the first session was as follows: the child was shown the boxes and the scale from like to dislike was explained. Help was given in reading the labels, or responding appropriately to the letter symbols in the case of the youngest children. Time was taken to train the child to use the relevant box for his response of like or dislike. Where necessary, this was continued until he made eight faultless choices. Children were then given further practice with the four training photographs until they were thoroughly familiar with the task.

The investigator then said: "I'm going to show you more pictures and each time I want you to put it into the box that says how you feel about him. Some of them are nice and some are not nice. Put them into the boxes that say what you think." The stress on the fact that some were not nice was necessary in an effort to counteract the tendency of the younger children towards a "Polyanna effect" of calling them all nice. Furthermore, in order to ensure that the child's attention was focused on the activity as well as on the person, the former would always be mentioned on handing the child a photograph during the training task—e.g. "Here is a picture of a man reading a newspaper . . . ." The experimental photographs were presented one by one and the child placed each in the box which recorded the extent of his liking (see Fig. 2).

The second session, separated from the first by about four weeks, followed exactly the same line. Since the task was by now familiar there was usually little need for further training. While there was no questioning at all during the first session, children were reminded at the end of the second session of some of their more extreme judgments, positive as well as negative; and they were asked what made them like or dislike people in the photographs. This was a safeguard in case there might be some unexpected biasing factor distorting the findings, but none was found.

The consistency of responses was assessed by means of the repeat photographs. A pair of responses to the same picture was defined as consistent if they fell on the same side of the like/dislike division, in at least three out of the four pairs. On this basis, taken over both sessions, the consistency of 6-year-olds was 73 %; this is rather low, though still very significantly different from mere chance responding (*P* less than 0·001). Consistency at ages 8 and 10, being 94 and 99 % respectively, was satisfactory.

Responses were analyzed by assigning arbitrary values of 1 to 4 over the range from "dislike very much" to "like very much". Each picture in both sessions thus had a score of between 1 and 4. A child's total score was arrived at by computing the mean of the differences between "drinking" and "non-drinking" versions; this difference score was then multiplied by 10 and increased by 40 so as to eliminate the decimal point and minus sign. Hence, difference scores range from 10 to 70, with a neutral point at 40; a score above 40 indicates a more *negative* attitude towards people shown drinking alcohol as compared with the same people engaged in other activities.

TABLE 5

Analysis of variance of D-scores

Source	SS	df	MS	*F*	*P*
Between subjects					
Age (A)	17842·80	2	8921·40	35·57	0·001
Sex (B)	345·60	1	345·60	1.38	NS
Age × Sex (AB)	48·46	2	24.23	<1	NS
Subjects within groups	58682·80	234	250·78		
Within subjects					
Sex of drinker (D)	1372·80	1	1372·80	24·42	0·001
AD	174·95	2	87·48	1·55	NS
BD	198·02	1	198·02	3·52	NS
ABD	199·88	2	99·94	1·77	NS
D × S within groups	13156·80	234	56·23		
Session (E)	7·01	1	7·01	<1	NS
AE	105·14	2	52·57	<1	NS
BE	8·44	1	8·44	<1	NS
ABE	131·08	2	65·54	<1	NS
E × S within groups	22558·80	234	96·41		
DE	116·20	1	116·20	2·60	NS
ADE	141·50	2	70·75	1·58	NS
BDE	21·00	1	21·00	<1	NS
ABDE	7·35	2	3·68	<1	NS
DE × S within groups	10438·40	234	44·61		

The difference scores were subjected to analysis of variance (Table 5) and two highly significant main effects of age and sex of drinker in the photograph emerged. The actual distribution of mean difference scores is given in Table 6. The mean for photographs of men judged by children aged 6 is only slightly above the neutral point, i.e. in the unfavourable direction. The two effects brought out by the analysis of variance can be seen very clearly: first, with rising age the judgments of drinkers tend to become increasingly unfavourable; second, at all ages women drinkers are judged more harshly by both boys and girls, there being no significant interaction.

TABLE 6

Means and standard deviations of difference scores* for pictures of men and women

	Ages					
	6		8		10	
	Mean	SD	Mean	SD	Mean	SD
Photographs of men	40·84	8·50	47·49	8·59	51·69	9·65
Photographs of women	44·09	7·82	48·61	8·37	54·40	9·25

*Range from 10 (maximal preference for drinkers) to 70 (maximal preference for non-drinkers), with 40 as the neutral point; therefore all the above means are in the direction of preference for non-drinkers.

Some of the persons portrayed were shown to be smoking. This design enabled some comparison to be made between attitudes to drinking and smoking. The detailed findings are given in Appendix D, and here it will be sufficient to say that developmental trends were closely similar for both.

4. Perceived likes and dislikes

The behaviour of people in society is governed by social norms, which are learnt by children in the course of their development. Such learning is based partly on explicit teaching by parents and other authority figures, and partly by the child taking his cues from the behaviour of "significant others" in his social environment. In the course of the present study children were asked what they had been told about alcohol, and the results will be reported later. The aim of this procedure was to get at the more subtle aspects of incidental learning based on what children observed in their social setting. This is a difficult problem, as it would obviously be futile to ask children direct questions. After a good deal of preliminary exploration it was decided to elicit from children their perception of what other people like and dislike, this being, as it were, the raw material from which they gradually come to construct their images of social norms concerning alcohol. As usual, the few items dealing specifically with alcohol were embedded in a wider context of more neutral items.

The actual method employed was a modification of one developed earlier in another study of cognitive development.* Two sets of lists were prepared of various activities appropriate to child, female adult and male adult roles. The first of these sets consisted exclusively of non-alcohol items such as "going to school", "doing the cooking" or "mending a car"; the second pair of lists included four critical items: "drinking beer", "drinking whisky", "going to the pub" and "being drunk". It should also be mentioned that some of the items were chosen to encourage maximally positive and negative responses respectively (e.g. "eating chocolate", "being punished"), so as to ensure that children would cover the total range. Both the lists and orders of items within them were systematically

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*This is unpublished, but a full account may be found in N. B. Johnson (1971), pp. 95–99.

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varied, some items being repeated as a consistency check, as was done with the photographs (full details can be found in Appendix C).

The lists were pre-recorded on tape so as to standardize presentation in terms of intonation and length of pause (5 seconds) between items. There was also an apparatus on which the child was able to register the extent of judged like or dislike of each activity. This was a closed box with four windows labelled "like very much", "like a little", "dislike a little" and "dislike very much" (see Fig. 3). This was of course the scale already used in connection with the judgments of photographs; and in the case of the younger children the same simple letter-code was substituted. Beneath each window there was a button which, on pressing, simultaneously lit up the appropriate label and sounded a buzzer, thereby providing reinforcement. This method avoided the need for the child to verbalize his response, and the rapid succession of stimuli did not give much time to consider what the "right" response might be.

At the outset children were trained in the use of the box, which they found both intriguing and enjoyable. After the training, four practice items were run to make sure that the child fully understood what was required and also to establish the necessary rhythm of response. At that time a small doll of the same sex as the subject was placed in front of and next to the box and the child was asked to respond as a little boy/girl like him/herself would:

"Now you're going to hear lots of different things that people do. I want you to tell me what things you think he (pointing at doll) likes to do and what he doesn't like to do; and you just press the button that says what you think".

When this run was completed the child doll was replaced by an adult female one, with instructions describing her as "a lady—somebody like your mum"; this was followed by "a man—somebody like your dad" (see Fig. 3). The child–lady–man sequence was kept constant as children seemed to feel more comfortable working outward from themselves than shifting from adult to child.

The consistency of responses was assessed in the same manner as in the case of judgments of photographs, allowing for the fact that the "perceived liking" task had twice as many repeat stimuli. Therefore consistency was defined in terms of responses falling on the same side of the line dividing like/dislike in at least six out of eight pairs of repeat stimuli. On this basis, the proportions of children responding consistently were 80% at age 6, 87% at 8 and 93% at 10. For this kind of task such levels of consistency are very satisfactory, indicating that most children had stable perceptions of the choice behaviour of other people.

Scoring also followed the pattern employed for photographs, ranging from 1 for "dislike very much" to 4 for "like very much". Mean scores were computed for the pooled "food" items from both lists and for each of the alcohol items separately; the remainder, consisting merely of "buffer" items, was ignored. Mean scores for each child were multiplied by 10 to yield rounded whole numbers, resulting in a scale from 10 (extreme dislike) to 40 (maximum liking). It should also be explained that the inclusion of the pooled "food" items was designed as a check that the children had understood the task and were performing in the way intended. Thus there is no reason why children should perceive foods being differentially liked by men, women and children (except perhaps for a slight bias in the direction of children's tastes among the foods included). If children had a general tendency to attribute differences to adults, then the data concerning alcohol might be difficult to interpret.

In fact, as the overall results summarized in Diagram 1 indicate, the outcome is as expected and food liking is perceived as practically identical irrespective of age or sex. The distributions of scores for both "food" and "being drunk" were so extremely skewed that parametric methods of analysis were inapplicable. Non-parametric analysis showed a highly significant difference (P less than 0·001) in children's perceptions of "being drunk": although the absolute level was strongly on the "dislike" side, men were seen as disliking "being drunk" less than either women or children.

Diagram 1 Overall mean liking scores, by roles.

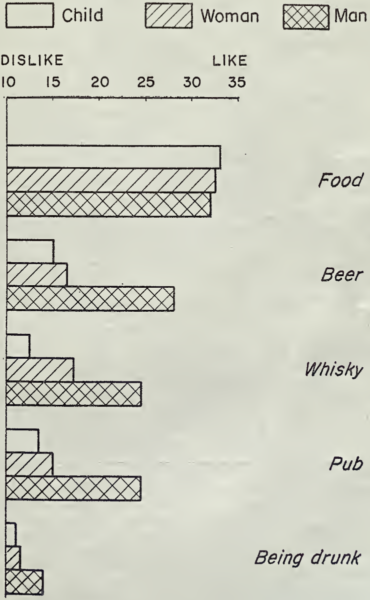

TABLE 7

Analysis of variance of liking scores

For "beer"

Source	SS	df	MS	*F*	*P*
Between subjects					
Age (A)	2081·74	2	1040·87	6·79	0·001
Sex (B)	1320·31	1	1320·31	8·61	0·001
Age × Sex (AB)	157·71	2	78·85	<1	NS
Subjects within groups	35880·20	234	153·33		
Within subjects					
Role (D)	24318·6	2	12159·31	173·25	0·001
AD	547·22	4	136·81	1·95	NS
BD	350·83	2	175·42	2·49	NS
ABD	304·58	4	76·15	1·08	NS
D × S within groups	32845·40	468	70·18		

For "whisky"

Source	SS	df	MS	*F*	*P*
Between subjects					
Age (A)	701·94	2	350·97	2·71	NS
Sex (B)	632·81	1	632·81	4·88	0·05
Age × Sex (AB)	52·50	2	26·25	<1	NS
Subjects within groups	30358·50	234	129·74		
Within subjects					
Role (D)	17675·50	2	8837·74	123·47	0·001
AD	2334·72	4	58·37	<1	NS
BD	319·37	2	159·69	2·23	NS
ABD	590·00	4	147·50	2·06	NS
A × S within groups	33498·30	468	71·58		

For "going to the pub"

Source	SS	df	MS	*F*	*P*
Between subjects					
Age (A)	1022·50	2	511·25	3·77	0·025
Sex (B)	1003·47	1	1003·47	7·39	0·001
Age × Sex (AB)	85·28	2	42·64	<1	NS
Subjects within groups	31744·20	234	135·66		
Within subjects					
Role (D)	17080·00	2	8540·00	91·00	0·001
AD	10·00	4	2·50	<1	NS
BD	134·44	2	67·22	<1	NS
ABD	190·56	4	47·64	<1	NS
D × S within groups	43918·30	468	93·84		

For the other three categories an analysis of variance was carried out, given in Table 7, and these can therefore be examined in more detail. Beginning with "beer", there was a highly significant main effect for what will be called "role" (whether child, woman or man). Men were perceived as liking beer more than either women or children, but there was no significant difference between the last two. Boys also gave significantly higher liking scores than girls, independently of roles. The general picture for "whisky" is fairly similar, apart from the fact that women are perceived to like it significantly more than children (*P* less than 0·01). The response patterns to "going to the pub" were almost exactly the same as those for "beer".

No mention has been made so far of the main effect for age, viz. that liking scores decrease with rising age. This effect is significant in the cases of "beer" and "going to the pub". Examination of mean scores by age (Table 8) will show that a consistent trend is reflected in all alcohol scores, though without always reaching significance. It is important to note that it is completely absent in the case of "food" scores.

TABLE 8

Means and standard deviations of liking scores by age and role

		Ages					
		6		8		10	
Object	Roles	Mean	SD	Mean	SD	Mean	SD
Food	Child	33·17	4·45	33·26	4·05	33·12	4·22
	Woman	31·92	4·65	32·98	4·86	32·95	3·79
	Man	31·58	5·48	32·61	4·72	31·56	4·33
Beer	Child	15·87	10·21	15·62	9·09	13·69	7·53
	Woman	17·75	10·60	16·87	8·78	14·44	6·75
	Man	31·44	11·86	28·25	11·75	24·37	11·19
Whisky	Child	12·75	7·54	13·19	6·67	11·52	4·08
	Woman	18·19	11·05	17·25	9·35	16·06	8·20
	Man	26·62	12·94	24·75	11·39	22·49	10·79
Pub	Child	14·87	10·25	14·12	8·32	12·12	5·41
	Woman	16·50	11·63	15·25	8·51	13·50	7·43
	Man	25·87	14·20	25·12	12·75	23·12	11·47
Drunk	Child	11·50	6·54	11·25	3·66	10·37	2·47
	Woman	11·75	6·66	12·00	5·34	10·62	3·65
	Man	15·50	10·94	14·50	9·07	12·75	7·58

Finally, the implications of the fact that no interactions proved significant requires some mention. It means that boys and girls did not differ in the way they perceived the behaviour of men and women, and this was true at all age-levels; nor did the relative perception of the three roles change with age.

As was done in the case of the photograph task, smoking was deliberately included as one of the stimuli. Here again the results presented in Appendix D indicate a close parallel in the ways liking for alcohol and smoking were perceived according to roles.

5 Concept task

There is no doubt that many young children know the names of specific alcoholic drinks and, as has been shown, some are even capable of identifying them from smell alone. However, a child may be familiar with the names of several alcoholic beverages and yet not be aware that they form part of the logical class "alcoholic drinks"; in other words the *concept* of alcohol may not yet have been acquired. Here again it would not be possible to rely solely on verbal questioning in dealing with this problem, since concept formation is only partly dependent on language. This has been extensively documented by Furth (1966), and in a more closely related sphere it has been demonstrated that children can achieve a grasp of the concept of social class without real understanding of the meaning of this term (Jahoda, 1959). The aim of this part of the study is to explore the extent to which children within the present age range have acquired the concept of "alcoholic drink" and can distinguish it from non-alcoholic drink.

The procedure consisted of three tasks. The first was primarily aimed at training, the second was the critical one focusing on alcohol, and the third was a follow-up intended to reduce the salience of the alcohol task in the children's minds. The training task based on discrimination learning was introduced in order to encourage the child at the outset to look beyond the immediate concrete perceptual aspect of the stimuli. The children had to learn to categorize stimuli into two mutually exclusive groups and respond accordingly. This will become clear when the actual operations are described.

The child was told: "I'm going to show you two things and I want you to guess which one I'm thinking of". He is then presented with a roll and an orange and told to choose the correct one. On this first trial the child of course can only guess. If he answered "orange" he was informed that it was right, if "roll", that it was wrong. In fact, the "fruit" answer was the one always reinforced by approval. On each successive trial the child was shown pairs of objects* all of which were food, but in each case one was fruit and the other non-fruit. Thus the children had to learn to look for and respond to the "fruit" stimulus (see Fig. 4). This was continued until the child had succeeded on six consecutive trials or until a total of 16 trials had been made. At that point the experimenter placed the objects together into two groups, a "fruit" and a "non-fruit" one; in order to find out whether he could apply the correct label (see Fig. 5). Many children volunteered it spontaneously at an earlier stage. In the case of children who had been unable to learn the discrimination, or of those unable to give an adequate response about the two groupings, the basis of the difference was explained by the experimenter.

Immediately following this, 8 bottles were produced, four containing alcoholic drinks (whisky, Guinness, sherry and wine) and four containing non-alcoholic ones (lemonade, coke, milk, orange squash) (see Fig. 6). They were placed together in a random fashion and the following instruction was given, leading on from the preceding task:

"I want you to put these bottles into two groups like we did with the food so that one group is different in some way from the other group."

Now it should be noted that there are a variety of possible ways of effecting such a grouping, e.g. size or shape of bottles, colour of labels or of contents. Whatever the grouping made by the child, he was asked to explain the reasons for putting the bottles together in his particular way. If the division had not been made in terms of alcohol, the experimenter re-sorted the bottles according to this criterion and asked the child if he could explain the difference between the two groups.

The opportunity was then taken to talk to the child about the contents of the various bottles—where he saw them, who drank them, whether he had been told anything about the kind of drink and by whom—generally his knowledge and experience concerning drinks was further explored.† Two questions about alcoholic drinks require specific mention, namely whether he had tasted them, and whether he anticipated drinking when older.

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*The fruit objects were: apple, orange, pear, grapes, lemon and banana; the non-fruit foods consisted of egg, cheese, roll, biscuit, meat paste and chocolate.

†Needless to say all questions were asked about "soft" as well as alcoholic drinks.

The final task in this series was similar to the first one concerned with food. It involved toy animals, and the expected discrimination was between domestic and wild (see Fig. 7). On completion the children were encouraged to talk about animals, which they did very readily, in order to distract their attention from the subject of alcohol. Both the fruit and animal tasks were used as subsidiary indicators of level of cognitive development.

On the preliminary fruit task 92% of the children achieved the discrimination within 16 trials, and nearly all of these were able to explain the distinction and group the objects accordingly; the remainder, as already mentioned, had the principle carefully explained to them. Their behaviour on being faced with the bottles is set out in Table 9.

TABLE 9
Grouping of bottles

	Ages					
	6		8		10	
	N	%	*N*	%	*N*	%
Alcohol grouping	34	42	72	90	77	96
Other systematic (e.g. size)	10	13	2	3	1	1
Syncretic	28	35	5	6	1	1
None	8	10	1	1	1	1
	80	100	80	100	80	99

The youngest children were of course least successful. Nonetheless a surprisingly high proportion managed the alcohol versus non-alcohol grouping. Next in frequency were those whose grouping was "syncretic", i.e. without any coherent rationale, and few felt unable to make any attempt. From age 8 onwards children seemed to experience very little difficulty in grouping the bottles correctly.

Next, one can see the extent of children's ability to explain the nature of the grouping in Table 10. Practically all those who had achieved a proper grouping offered a satisfactory explanation. For those who had failed the first time, the experimenter regrouped the bottles into alcohol versus other, and thereupon

TABLE 10
Ability to explain alcohol grouping

	Ages					
	6		8		10	
	N	%	*N*	%	*N*	%
Immediate correct explanation	32	40	71	89	76	95
Correct after experimenter's re-grouping	21	26	5	6	2	3
No correct explanation	27	34	4	5	2	3
	80	100	80	100	80	101

about a further quarter of even the youngest children were able to show that they understood the nature of the grouping; this applied particularly to those whose first attempts had been systematic and based on a principle like size; this indicated that the alcohol concept had been available to them, but was just not the most salient. Thus only about one-third of the 6-year-olds could be said to be totally lacking in the alcohol concept.

Lastly, it is of interest to consider how the children actually expressed themselves in this situation (Table 11). Hardly any of those below 10 knew the word "alcohol", and even at that age the proportion was less than one-third. However, it is apparent that even without the concept label, nearly all children who had mastered the concept were able to convey this in some fashion.

TABLE 11

Phrasing of explanations

	Ages					
	6		8		10	
	N	%	*N*	%	*N*	%
Use of the term "alcohol"	—	—	2	3	25	31
Specific alcoholic drinks named	36	45	46	58	40	50
More indirect references to alcohol (e.g. "from the pub" "not for children")	17	21	28	35	13	16
Wrong explanations or none	27	34	4	5	2	3
	80	100	80	101	80	100

6 Drunkenness film

Children at some stage learn that excessive use of alcohol leads to drunkenness, and they also acquire the ability to infer that state from a person's behaviour. Prominent among the cues for recognition are slurred speech and lack of control of bodily movement, neither of which can be identified from still photographs. A film technique was therefore devised to present to the children the unstable movements characteristic of drunkenness. A sound film might have been used for conveying the speech cues, but insufficient resources prevented this. The general object of the method was to assess children's understanding of drunkenness and its cause within the context of a "live" social situation, and to follow this up by eliciting other pertinent information about children's ideas in this area.

Three loop films were prepared, all concerned with mental and bodily states. The first depicted a happy child, the second a drunk man and the third an exhausted man. The aim of the first film was to prepare the child for the task of identifying a person's state and inferring its cause; the purpose of the third was to embed the critical film within a neutral context which was at the same time enjoyable. The films were composed of four parts, each lasting about 15 seconds: A, B, C and D. Here only the details of the critical film will be described, those for the other two being relegated to Appendix E. The component parts were as follows:

A—Man in pub drinking whisky and picking up glass of beer;
B—Close shot of man draining beer glass and staggering from bar;

C—Man staggering out of pub door (external shot);
D—Man staggering along the road.

The above constitutes the natural chronological order of events, but that was not the way it was shown. Four separate segments were constructed by splicing, namely D, CD, BCD, and ABCD; in fact, it turned out in the course of the pilot stage that ABCD rarely served any useful purpose by adding further cues, and it was therefore omitted.

When administering this task the child was first shown the last part (D) of the introductory film showing a smiling boy, a large parcel under his arm, walking in the street with his mother. The child was asked what the boy was doing, how he felt and what had happened before. Segments CD, BCD and in this case also ABCD were then successively run, providing progressively more information about preceding events. The whole issue was thoroughly explained, and the majority of children had no difficulties in understanding what was expected.

The film showing the drunken man was then run through in the same order, accompanied by a standard set of questions (see Fig. 8). The point, if any, at which the child identified the nature of the man's state was noted, and the opportunity was used to explore the child's experience, direct or indirect, of drunks and drunkenness.

TABLE 12

Segment of film at which recognition occurred

	Ages			
	(4)	6	8	10
At once at D—staggering in street	(3)	69	77	80
At CD—staggering out of pub	(3)	9	3	—
At BCD—drinking in pub	(6)	2	—	—
Never understood	(2)	—	—	—
	(14)	80	80	80
Per cent recognized at once at D	(21%)	86%	96%	100%

The findings concerning the amount of information required by children for recognizing drunkenness are presented in Table 12; the success rate at D was so high that the same task was also tried with the small supplementary nursery school sample. These very young children also did surprisingly well, some two-fifths of them giving correct responses at D or CD. It should be mentioned here that there may perhaps be some discontinuity between D and CD on the one hand, and BCD on the other. Those who succeeded during the former two stages gave every indication that they clearly understood the connection between drinking alcoholic beverages and the manifestations of intoxication; in the case of children who said nothing about drinking until the pub scene was shown there was occasional doubt whether they had really grasped the causal link. At any rate it seems safe to conclude that children's understanding of drunken behaviour develops some time between the ages of 4 and 6.

The only other result to be reported in this section concerns the answer to the question, "Where have you seen people like that?". The distribution of replies is given in Table 13. The salient fact is that overall no fewer than 95% of the sample claim to have seen drunks in the flesh, a proportion that varied little with age. The commonest location was the street, and what was (presumably) the outside of pubs really falls into the same category. Mass media were seldom referred to, and it would appear that these have made but little impact as far as drunkenness is concerned. Perhaps the most interesting finding relates to the home, where there is a sharp contrast between those aged 6 and older children. The difference is highly unlikely to have been a chance fluctuation (*P* less than 0·01), and it is proposed later to return to the possible implications.

TABLE 13

Places where drunks are claimed to have been seen

	Ages					
	6		8		10	
Places	*N*	%	*N*	%	*N*	%
Street	44	55	56	70	61	76
Home	19	24	8	10	8	10
Pub	12	15	11	14	10	13
TV/Cinema	3	4	2	2	1	1
Nowhere	2	2	3	4	—	—
	80	100	80	100	80	100

II Children's verbal responses and spontaneous comments

1. Direct experience of alcohol

This refers to forms of direct physical contact with alcohol as reported by the children. The first occasion arose in the course of the "smells" test, when those children who had recognized beer and/or whisky were asked whether they liked it. The pattern of responses in Table 14 indicates a stable proportion of children who declared their liking of the smell of alcohol; however, the proportion of dislikes increased steadily and highly significantly with advancing age, as appears from the trend test. Since alcohol is generally regarded as an "acquired" taste, such a trend is contrary to commonsense expectation and will later be discussed in a broader context.

Children were also questioned about where they had encountered the smell of alcohol, and it appears from Table 15 that it was predominantly within their own home. Older children were more apt to name places outside the home such as the houses of relatives, parties they had attended, pubs (presumably outside?) and what some of them called "wine shops".

When all the bottles were standing on the table during the concept task, alcohol being thus concretely present, an inquiry was made as to which (if any) of the drinks the children had tasted; this also enabled them to mention others not actually present which they might have tasted. Results are given in Table 16, where it can be seen that three-fifths of the children claimed to have tasted an alcoholic drink or drinks. There was a slight tendency for younger children to name only beverages of low alcoholic content, but this was far from significant. This outcome appears rather puzzling, as one would have expected a higher

TABLE 14

Liking for beer and/or whisky (based on smells)

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Dislikes one* or both	10	13	23	29	27	34	60	25
Likes one* or both†	18	22	15	19	17	21	50	21
"Don't know" to both or neither recognized	52	65	42	52	36	45	130	54
	80	100	80	100	80	100	240	100

*Where the other one not recognized.
†Includes 3 who like one and dislike the other.

Trend test for age changes*

Source of variation	df	χ^2	Signif. level
Due to linear regression	1	9·72	$P < 0{\cdot}005$
Departure from regression line	1	1·04	NS
Total	2	10·76	$P < 0{\cdot}005$

*Omitting the 3 who liked one and disliked the other; the test was based on the dichotomy "dislikes one or both" versus the rest.

TABLE 15

Places where children reported smelling beer and/or whisky

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Home only	28	35	35	44	32	40	95	40
Home and outside	—	—	2	3	7	9	9	4
Outside only	3	4	5	6	10	12	18	8
Not applicable (failed to identify smells)	49	61	38	47	31	39	118	49
	80	100	80	100	80	100	240	101

proportion of older children to have tasted alcohol. Perhaps the anticipated age difference might lie not so much in whether or not children have tasted alcohol (most tolerant families allowing children to taste it when quite young), but more in terms of an increase in the frequency and amount of partaking of alcohol.

No attempt was made to ascertain this. Again, one might just suppose that the reliability of reporting was low. However, this would hardly constitute an explanation of the absence of an age trend; moreover, accounts of tasting experiences were often given in circumstantial detail and certainly sounded highly convincing—young children would have found it difficult to make this kind of thing up on the spur of the moment. An analysis by time of testing suggests that forgetting of tasting experiences may have been at least a contributory factor. Children tested after the Christmas holiday reported far more frequently that they had tasted alcohol; as the age structures of pre- and post-holiday samples were exactly the same, it is unlikely that the increase is accounted for by the children having their first taste of alcohol during the Christmas season. It should also be noted that boys included a significantly higher proportion of tasters than girls.

TABLE 16

Alcoholic drinks tasted by children

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Weak only (e.g. beer, shandy, cider)	29	36	27	34	24	30	80	33
All kinds	17	21	23	29	25	31	65	27
None tasted	34	43	30	37	31	39	95	40
	80	100	80	100	80	100	240	100

	Time of testing			
	Before Christmas holiday		After Christmas holiday	
	N	%	*N*	%
Some tasted	60	50	85	71
None tasted	60	50	35	29
	120	100	120	100

$\chi^2 = 10{\cdot}89$; df $= 1$; $P < 0{\cdot}001$.

	Sex			
	Boys		Girls	
	N	%	*N*	%
Some tasted	83	69	62	52
None tasted	37	31	58	48
	120	100	120	100

$\chi^2 = 7{\cdot}68$; df $= 1$; $P < 0{\cdot}005$.

TABLE 17
Place where alcohol tasted

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Home	46	58	45	56	42	52	133	55
Special occasion outside (e.g. party, wedding)	—	—	5	6	7	9	12	5
Not tasted	34	42	30	37	31	39	5	40
	80	100	80	99	80	100	240	100

The place where alcohol was most commonly tasted (Table 17) was again the home, as already shown with regard to smelling alcohol; as some four weeks separated the sessions where the smells and tasting respectively were dealt with, this congruence provides fairly conclusive evidence. In a large majority of cases the person who gave the child the drink to taste was said to have been the father (Table 18).

TABLE 18
Reported source of drink tasted

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Father	39	49	43	54	41	51	123	51
Mother or other relative	7	9	7	9	8	10	22	9
None tasted	34	42	30	37	31	39	95	40
	80	100	80	100	80	100	240	100

2 Reported statements and observations

Children were asked what they had heard people say, or had been told about "them", i.e. the array of alcoholic drinks displayed. The general distribution of responses is given in Table 19. The most salient feature to emerge is that some two-thirds of the children could not recall hearing or being told anything at all. This obviously cannot be just a function of the absence of a concept of alcohol, as it has been previously shown that from 8 years onwards at least nine out of ten children do have such a concept. The minority of children who were able to recall something people had said gave a wide variety of responses. Since the questioning in the situation was casual and semi-formal rather than intensive and rigidly standardized, it would not be justifiable to attempt any quantification beyond that of the crude categories in Table 19. At the same time, the types of answer obtained are of interest and will be briefly illustrated, giving ages in brackets after each quotation.

TABLE 19

What children have "heard people say" about alcohol

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Positive or factual	5	6	8	10	8	10	21	9
Negative	16	20	19	24	23	29	58	24
Nothing	59	74	53	66	49	61	161	67
	80	100	80	100	80	100	240	100

	Social class			
	Middle		Working	
	N	%	*N*	%
Positive or factual	10	8	11	9
Negative	39	33	19	16
Nothing	71	59	90	75
	120	100	120	101

$\chi^2 = 9{\cdot}19$; df $= 2$; $P < 0{\cdot}01$.

Positive: "Mum said some taste nice" (6); "I've heard that Guinness is good for you" (8); "They make you feel happy" (8); "I've heard that advocaat, port and Scotch whisky are good" (10).

Factual: "They make you drunk" (8); note that this was said *before* the drunk man was shown.

Negative (*a*) *Instructions not to drink:* "Mum and dad say not to drink them" (6); "Dad said not to touch them" (10).

Negative (*b*) *for adults only:* "Children are too wee" (6); "Children should not drink pub drinks" (8); "They're for grown-ups only" (10).

Negative (*c*) *physical harm:* "They're not good for you—give you tummy upset" (6); "It stops you growing" (8); "Might take a heart attack" (8); "It burns your throat" (10)—this one clearly a first-hand experience!

Negative (*d*) *miscellaneous:* "It's bad" (6); "You can't drink till you go to confession" (8); "Not safe with car if you drink" (10).

The second part of Table 19 indicates a highly significant social class difference, middle-class children providing about twice as many negative responses. It can be seen from Table 20 that parents were the predominant source of attitudes and information about alcohol.

Although no specific questions were asked, children invariably referred at some point during the procedures to the drinking behaviour they had observed in their own family. Such comments were collated, and the outcome is presented in Table 21. It is, of course, not possible to be sure how far these statements reflect actual parental behaviour, and the second part of the table dealing with sex differences provides a strong indication that the comments cannot be taken at their face value. It emerges from this that girls were more likely to mention

ILLUSTRATIONS

Fig. 1 Smells test: The experimenter is presenting each liquid in turn to determine whether the child recognizes the smell. The jar is then placed in the relevant group of recognition on the right-hand of the picture, or non-recognition on the left-hand of the picture.

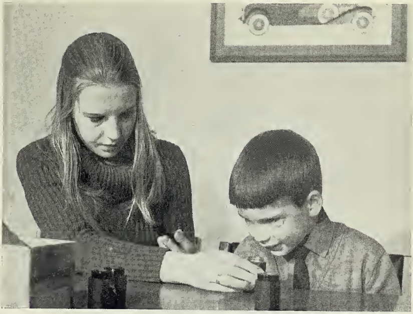


Fig. 2 Judgments of photographs: The photographs are presented to the child one by one, and he is placing each in the box that says what he feels about the person.

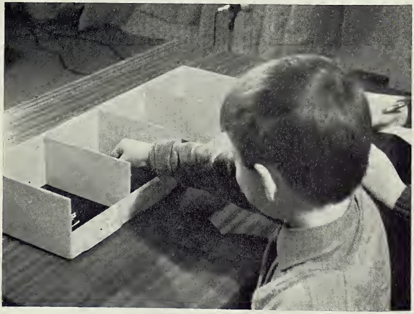


Fig. 3 Perceived likes and dislikes: The child listens to the pre-recorded list of activities and presses the button to record how he thinks a man feels about each activity. (The adult male doll is standing by the box).

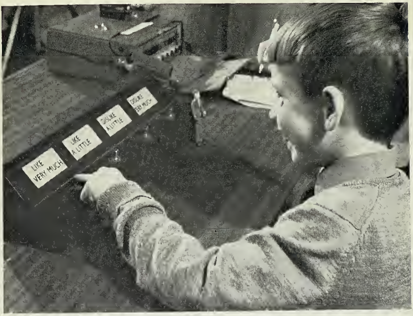


Fig. 4 Discrimination learning task (1): The child is presented with pairs of food items, one fruit and one non-fruit. Here, he is contemplating a lemon and a piece of cheese, one of which he must choose. The other items are obscured from his view in the box in the foreground.

Fig. 5 Discrimination learning task (2): The experimenter has grouped the food into a fruit and non-fruit group. The child is explaining the difference between the two groups.

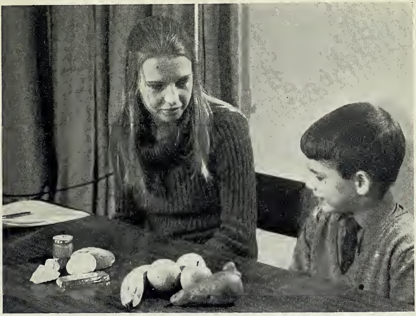


Fig. 6 Bottle grouping task: The child is grouping the eight bottles (from left to right: wine, milk, sherry, lemonade, whisky, orange squash, coke and Guinness) into two groups so that one group is different in some way from the other group.

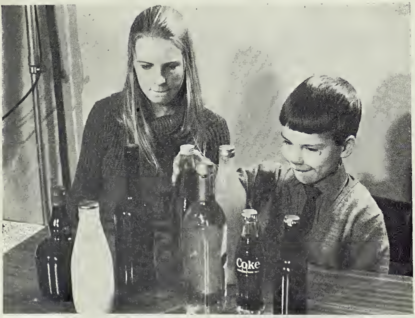


Fig. 7 Animal-grouping task: The child is grouping the animals into two groups.

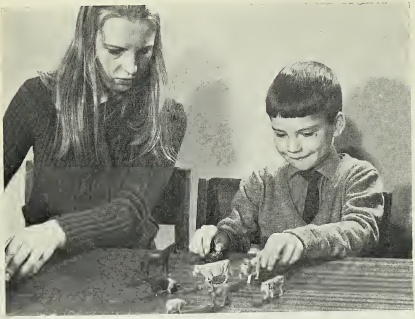


Fig. 8 Drunkenness film: The child watches part D of the film (the drunk staggering along the road) before being questioned about the nature of the man's condition.

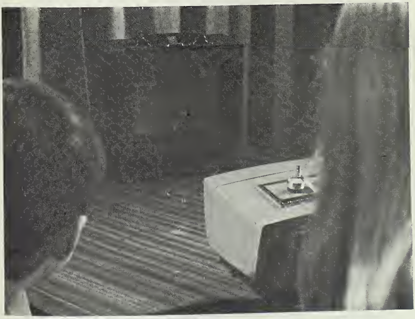
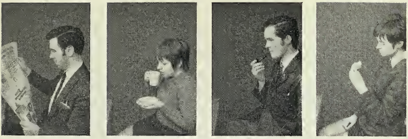


Fig. 9 Photographs used in judgments.



Training Photographs

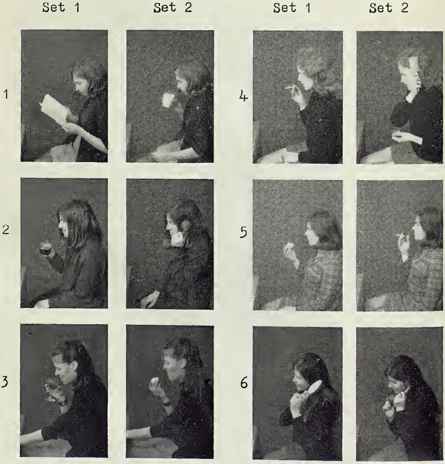


Fig. 9 (Continued).

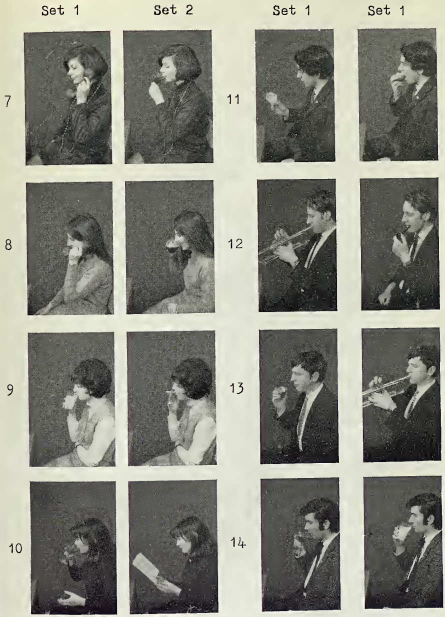


Fig. 9 (Continued).

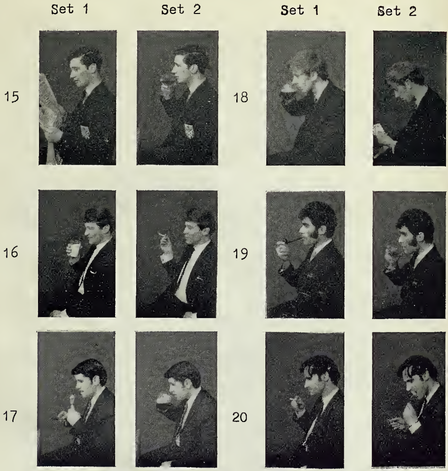


TABLE 20
Where children heard about alcohol

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
From Parents	18	22	20	25	25	31	63	26
Other sources	2	3	1	1	3	4	6	3
D.K. where	1	1	6	8	3	4	10	4
Heard nothing	59	74	53	66	49	61	161	67
	80	100	80	100	80	100	240	100

that only their father, or that neither of their parents, drank. Since it is highly improbable that families' drinking behaviour varies substantially in accordance with the sex of the children, one is led to the conclusion that some distortion* is involved.

TABLE 21
Parental drinking behaviour mentioned by children

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Both parents	34	42	39	49	21	26	94	39
Father only	39	49	27	34	40	50	106	44
Mother only	1	1	1	1	—	—	2	1
Neither parent	6	8	13	16	19	24	38	16
	80	100	80	100	80	100	240	100

	Sex			
	Boys		Girls	
	N	%	*N*	%
Both parents	59	50	35	29
Father only*	47	39	59	50
Neither parent	13	11	25	21
	119	100	119	100

Sex differences: for "neither" versus the rest
$\chi^2 = 4{\cdot}51$, df $= 1$, $P < 0{\cdot}05$;
for "both" versus "father only"
$\chi^2 = 6{\cdot}77$, df $= 1$, $P < 0{\cdot}01$;
overall $\chi^2 = 11{\cdot}28$, df $= 2$, $P < 0{\cdot}005$.

*The responses "mother only", offered by only one boy and one girl, were omitted from this comparison.

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*There may be either distorted perceptual judgment, whereby girls actually get the impression that there is less drinking; or selective reporting in the sense that girls tend to understate the amount of drinking at home. It is not possible to differentiate between these possibilities on the basis of the data.

3 Drunkenness

While the loop-films portraying a drunken man were being shown, children were encouraged to voice their ideas and feelings about drunks. At the outset, the kinds of things children said they had heard about drunks are summarized in Table 22. Some three-fifths could not recall ever having heard anything. The few positive factual statements were concerned with the pleasant feeling associated with intoxication, or its less pleasant after-effects, such as being sick. Negative statements fell into three main categories, which will be illustrated.

TABLE 22
Children's information about drunks

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Positive or factual	4	5	2	3	—	—	6	3
Negative	19	24	31	39	34	43	84	35
None	57	71	47	59	46	58	150	62
	80	100	80	101	80	101	240	100

Trend test for age changes*

Source of variation	df	χ^2	Signif. level
Due to linear regression	1	6·30	$P < 0{\cdot}02$
Departure from regression line	1	0·62	NS
Total	2	6·92	$P < 0{\cdot}05$

*Negative versus the rest.

Negative (*a*) *Instruction not to get drunk:* "Don't get drunk when you are older" (6); "Don't start drinking like your dad" (8); "Dad says no one is to get drunk or smoke in my family" (10).

Negative (*b*) *Instruction to avoid drunks:* "Keep away from them" (6); "Dad said not to go near drunks" (8); "Don't bother with them" (10).

Negative (*c*) *Characterizations of drunks as dangerous and/or aggressive:* "Dad says keep away—they might get you" (6); "They are mad" (8); "They leave little children alone in the house" (8); "They attack people" (10).

All these are statements made by the parents; but some of the children's ideas were based on first-hand observation of drunken behaviour, either outside in the street or within their own home. Usually in the course of presenting the loop film about the drunken man, though occasionally at other points during the procedures, some children made spontaneous mention of drunkenness in their family; this related mostly to the father or in a few cases to both parents. Careful note was taken of any such reference and also the explicitly stated or implied frequency of such episodes. The outcome is set out in Table 23.

TABLE 23

Mentions of frequency of paternal intoxication

	Age							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Often	15	19	9	11	9	11	33	14
Sometimes	12	15	9	11	13	16	34	14
Never	12	15	15	19	12	15	39	16
Not mentioned	41	51	47	59	46	58	134	56
	80	100	80	100	80	100	240	100

	Social class			
	Middle		Working	
	N	%	*N*	%
Often	15	12	18	15
Sometimes	20	17	14	12
Never	33	28	6	5
Not mentioned	52	43	82	68
	120	100	120	100

$\chi^2 = 26{\cdot}73$; df $= 3$; $P < 0{\cdot}001$.

Clearly a substantial proportion of children have had close contact with drunkenness in their home setting. There are likely to be even more among those who did not mention the subject of drunkenness in the home. It is of interest that a number of children specially stated that their father was *never* drunk. The breakdown by social class indicates that this was stressed mainly by middle-class children—the reported rates of intoxication as such did not differ significantly by social class. It is also worth noting that the rate of reporting paternal drunkenness did not vary much with age (the slight decline being non-significant). This is consistent with the reports being factual in nature. By contrast, the amount of negative information increased significantly with age.

TABLE 24

Reported source of information about drunks

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Father	6	8	10	13	12	15	28	12
Mother	6	8	14	17	14	17	34	14
Other (mainly observation)	9	11	8	10	8	10	25	10
None or D.K.	59	74	48	60	46	58	153	64
	80	101	80	100	80	100	240	100

It will be seen from Table 24 that, as usual, parents constituted the major source of information. At the same time the ideas and attitudes stemming from direct observation appear to be most vivid, and some quotations will convey the children's reactions to seeing their father, or sometimes both parents, drunk.

> "Dad smells after drinking and Mum doesn't like it. She gets angry" (6);
> "He's a nuisance and Mum tells me to go to bed" (6);
> "Don't like them when they're drunk; she hits me" (6);
> "Dad gets drunk; he falls everywhere. He fights with Mum" (8);
> "They have rows about him drinking. He is rough" (8);
> "Don't like Dad getting drunk—he might get into trouble; Mum is mad with him" (8);
> "Dad argues with Mum when he's drunk—I don't like him" (10);
> "Dad gets drunk and bawls and shouts. When people are drunk they get angry about things that annoy them" (10).

These children do of course form a special sub-group, and their responses are apt to convey a misleading impression of the overall picture. When children were asked directly about the feelings of the drunk man in the film their answers were distributed in the manner shown in Table 25. It would appear from this that two-fifths of the children attributed pleasant feelings to the drunk man. In fact this conclusion has to be qualified, for the following reason: when children were asked how the man felt, only 7% immediately replied that he felt good whilst 29% answered that he felt bad. Those who failed to respond spontaneously were given a forced-choice follow-up question: "Do you think he is happy or sad?" It was in response to this that a further 33% described him as happy, and

TABLE 25

Reported feelings of drunken man

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
Feels good	28	35	34	42	33	41	95	40
Feels bad	50	62	43	54	42	53	135	56
Other	2	3	3	4	5	6	10	4
	80	100	80	100	80	100	240	100

	Social class			
	Middle		Working	
	N	%	*N*	%
Feels good	59	49	36	30
Feels bad	59	49	76	63
Other	2	2	8	7
	120	100	120	100

$\chi^2 = 11{\cdot}31$; df $= 2$; $P < 0{\cdot}005$.

27% as sad. The spontaneous responses reveal further aspects of children's ideas, and a further selection will therefore be quoted.

Feels good: "People are happy in pubs" (6); "People are always happy when they're drinking—my dad is" (8); "He feels good" (10).

Feels bad: "Not very good; he's drunk too much—made him upset" (6); "He feels mad" (6); "He's got a pain in his head" (8); "He's sad and doesn't

TABLE 26

Answers to question whether child expects to drink alcohol when older

	Ages							
	6		8		10		6–10	
	N	%	*N*	%	*N*	%	*N*	%
No	20	25	30	38	38	48	88	37
Not sure	4	5	5	6	9	11	18	7
Yes	56	70	45	56	33	41	134	56
	80	100	80	100	80	100	240	100

Trend test for age changes

Source of variation	df	χ^2	Signif. Level
Due to linear regression	1	11·76	$P < 0{\cdot}005$
Departure from regression line	3	2·04	NS
Total	4	13·80	$P < 0{\cdot}01$

	Social class				Religion			
	Middle		Working		Non-denom.		Catholic	
	N	%	*N*	%	*N*	%	*N*	%
No	46	38	42	35	47	39	41	34
Not sure	8	7	10	8	6	5	12	10
Yes	66	55	68	57	67	56	67	56
	120	100	120	100	120	100	120	100

	Sex			
	Boys		Girls	
	N	%	*N*	%
No	38	32	50	42
Not sure	10	8	8	7
Yes	72	60	62	52
	120	100	120	101

want to go home to his wife drunk" (8); "He doesn't feel good because he has to go home—he likes to drink to get away from home" (8); "Feels terrible with headaches" (10); "He fells sorry for himself" (10).

As these quotations illustrate, some of the children have a much shrewder idea of the feelings of a drunk than one would credit them with at their age. The further analysis by social class provides evidence that working-class children are significantly more likely to view the drinking experience as an unhappy one, which might well be an accurate reflection of their experience.

4 Future orientation

Towards the end of the concept task, when the bottles were displayed on the table, children were asked with reference to the alcoholic drinks: "Do you think you'll drink them when you are older?" The question was asked prior to the showing of the drunk man, so as to avoid influencing the answers by drawing attention to the more extreme consequences of drinking. The pattern of responses is set out in Table 26. Overall, a majority of the children anticipated that they would be drinking when older. The proportion responding with an unqualified affirmative was highest at age 6, declining steadily and significantly thereafter.

While most children merely said "Yes", "No" or "Not sure", there were some who attempted to justify their reply and some examples will be given:

No: "Dad told me they don't taste nice" (6);
"But I don't mind Mum and Dad drinking—they're my Mum and Dad" (6);
"It's just men that drink" (girl, 6);
"I don't want to be an alcoholic" (8);
"I don't like people who get drunk" (10).

Yes: "You get used to them when you're older" (6);
"Because I'll be big" (6);
"Mum and Dad won't mind when I'm older" (6);
"Everybody else drinks them" (8);
"When you're older you know right and wrong" (10).

Most of the comments, it may be noted, refer directly or indirectly to adult standards. It should be emphasized that responses of the children were almost completely uniform irrespective of social class or religion, as shown in the relevant breakdowns; and although boys were somewhat more inclined to see themselves drinking in future, the difference was far short of statistical significance.

DISCUSSION

The results of the present study amply confirm the expectations that originally inspired it: children grow up in an environment of which alcohol forms an important facet, and they come to terms with it in various ways much earlier than is generally believed. One reason for the unrealistic developmental time-scale relating to contact with alcohol may perhaps be found in the retrospective questions asked in surveys of older subjects, which usually suggested that the first drink was not tasted by the majority until the early 'teens.* In fact, this is almost certainly a function of faulty recollection, possibly coupled with a tendency to give a socially desirable answer. It may well be that most people fail to realize how common childhood tasting of alcohol is, and do not wish to be regarded as exceptionally precocious drinkers. Some evidence for the fallibility of memory emerges in the comparison of tasting rates reported before and after the Christmas holidays (p. 22). Although the present results are also based on questioning (and it would be extremely hard to find a realistic alternative), they are strongly supported by the independent and entirely objective evidence from the smells test. There can thus be no doubt that a majority of children in the sample had direct contact with alcohol during the early years of primary school.

Given the child's experience, direct or indirect, of alcohol and its effects, how soon is he able to assimilate these cognitively? It appears to be simpler to recognize the effects of alcohol on bodily movements, since even some nursery school children were capable of responding correctly to purely visual cues attributing the behaviour to drinking, usually beer. Although the issue was not systematically investigated with nursery school children, it is very doubtful whether any of them had formed a general concept of the "alcohol" class. There is probably some kind of awareness that certain drinks such as beer and whisky are in some sense special, but this is likely to be the outcome of learning particular associative links which have not yet become elaborated into the notion of a category. The concept test indicated that this had happened with a minority of 6-year-olds; by age 8, nine out of every ten children had formed an operational scheme enabling them to oppose alcoholic to non-alcoholic drinks (though of course without possessing the actual verbal label "alcohol"). This fits in well with the work of Inhelder and Piaget (1964) who have shown that children acquire the ability to form complementary classes between the ages of 7 and 8.

Another mainly cognitive aspect concerns the perceived degree of liking (and thereby presumably corresponding behaviour) of alcohol by different categories of people. It has been established that most children are quite capable of making this kind of discrimination by the age of 6. There remains some ambiguity about the reference group selected by the children, and this arises from the nature of the instructions. In order to avoid the need for an imaginative effort to put oneself in the place of others, which young children find very hard if not impossible, the instructions were focused on a doll of the right age and sex concretely present in front of the children. The instructions were couched in terms of "a man—somebody like your dad". The question thus arises whether, in making their judgments, children were thinking of their own father in particular or whether their responses reflect their ideas about adult males in general. The two are of course likely to be related, especially in the minds of younger children, but it is at least possible that they may have responded according to some kind of implicit social norm.

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*Cf. V. T. Searle-Jordan (1970); or Davies and Stacey (1972).

In order to throw some light on this problem, two extreme sub-groups of children were singled out in accordance with the available information. These will be called the "heavy drinkers" (H) and "abstainers" (A) groups respectively. The criterion for inclusion in the H group was that the children should have given circumstantial details of heavy drinking and drunkenness within the home, scenes which had obviously distressed at least some of them. The criterion for the A group was first that children should have made clear and explicit statements about the fact that no alcohol* was being consumed in their home; moreover, any who either recognized the smell of alcoholic drinks or said that they had tasted alcohol were excluded.† There were 19 cases in the H and 18 in the A group. The argument now runs as follows: if these children had made their judgments according to what they consider to be the social norm, and if it is further assumed that this image of the norm is relatively independent of the home background, then there should be no significant differences between the judgments made by children in these two groups. On the other hand, if the children judged purely on the basis of their home experience, or if their image of social norms is predominantly determined by their home background, then there ought to be a significant difference between the judgments of children from these two extreme groups.

Comparisons were made between roles of maximal contrast, namely child and adult male for both beer and whisky. There was no significant difference between the child liking scores of H and those of A. Difference scores between liking by child and liking by adult male were computed. For beer the mean difference scores were 1·61 for H and 0·61 for A (P less than 0·005); the corresponding scores for whisky were 1·47 and 0·50 (P less than 0·02). This supports the view that children based their responses mainly on direct experience within their own family. The deviants within both these groups were of particular interest, and will be referred to subsequently.

So far, each experimental procedure has been considered in turn, but it is now proposed to consider a general trend running through several of the more evaluative and informational aspects of the results: this trend is the significant tendency for judgments about or associated with alcohol to become more negative with increasing age. For example, this applies to the content of children's information about drunks, or their own intentions regarding drinking in the future when they are older. With regard to these, it could be argued that children were not giving genuine responses reflecting their own attitudes; what they were doing was to offer the "proper" answer in the situation, and this increases with age as children learn what is socially acceptable.

There is little doubt that such learning does occur; for, even if children give answers which are not truly their own but are designed to convey a certain impression, it still implies that they have acquired a knowledge of what the desirable norms are in an authority setting like the school where the work was carried out. However, an interpretation merely in terms of socially desirable responses will not stand up when the whole range of findings is considered. The examples just given occurred in a context where alcohol was obviously the main topic of discussion, at that moment. The smells and picture judgments, by contrast, were administered before any alcohol issue was directly touched upon, the alcohol-related aspects of the procedures being well embedded in a wide variety of other matters. Nonetheless, in the case of the smells, the proportion of "dislike" responses increased significantly between 6 and 10. Similarly with the photographs, whose alcohol component was again apparently incidental: at the age of 6 judgments were very close to the neutral point, but by 10 they had moved sharply and significantly in a negative direction.

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*They did of course not use this word, referring to "things like beer or wine".

†There is no necessary inconsistency here; one boy, for instance, was given beer to taste by his uncle.

Lest it be thought that this matter has been unduly laboured, it should be pointed out that it has far-reaching implications. If the children were merely learning to give the socially appropriate responses, these would have little if any personal involvement. As it has been shown above, however, that the negative attitudes acquired in various ways from their wider social environment appear to be internalized rather than superficial, one encounters here a source of potential conflict between the norms of behaviour in the home and others attached to authoritative figures and institutions in society at large; and such a conflict is likely to have some bearing on future behaviour.

Such an interpretation is consistent with the impression gained when observing the manner of responding of children of different ages. This may be illustrated with the main standard question asked of each child, namely future drinking intentions. At age 6 most children said spontaneously and without much hesitation that they were going to drink when older; by age 8 a note of doubt and embarrassment crept in which became more pronounced at 10. At the same time, the proportion saying "yes" declined, while the "don't knows" and "noes" rose significantly.

There is a possible alternative view that would place the stress on cognitive-informational rather than emotional-attitudinal factors in accounting for these changes. It might be argued that children from 6 onwards learn more about the perils of alcohol and therefore become more negatively disposed towards it. The verbal responses obtained in the present study fail to lend support to such a view. In the first place, children had little systematic and realistic information about alcohol, except perhaps for the fact that most adults take it. Parental injunctions not to drink seem usually to have been issued in their explanations and were commonly nullified by the spectacle of the parents themselves indulging. A few unfavourable notions were of a kind that might have turned a child at least temporarily against alcohol, such as "it stops you growing" (8-year-old); but health hazards were only mentioned by a small minority. Unfavourable ideas about drunks and drunkenness were similarly stereotyped; and by many children the "bad' drunk was seen as a distant stigmatized figure—it is hard to believe that they would be likely to relate this to the possible outcome of their own future drinking behaviour. In general it may be said that children were conspicuously lacking in adequate knowledge of alcohol and its effects.

There is one sub-group to whom this does not apply, namely those from homes with "heavy drinkers" (H) as previously defined. Here we have children who experienced the more unpleasant aspects of alcohol at first hand, and sometimes the experience appears to have been little short of traumatic. Does this suffice to put them off alcohol, or does the parental model factor still prevail? The data indicate that the latter is the more powerful: out of the 19 H cases, 13 said they would drink when older, and 6 said they would not. Almost exactly the same ratio obtained, in reverse, for the abstainers (A): 12 "noes", 5 "yesses" and 1 "don't know". While the predominant influence of the parental model is thus evident, this should not blind us to the fact that about one-third failed to conform; and while the numbers are too small for any firm statement, it does look as though the non-conformists might be identified from their deviant responses on the test of "Perceived Likes and Dislikes". Here they seemed to make their judgments according to the perceived social norm rather than by reference to parental models and their intended drinking behaviour tended to conform to that norm.

While the close scrutiny of the responses of extreme groups is instructive, one would also like to isolate relationships which hold for the whole sample. For this purpose the intention to drink in future was treated as the dependent variable to be predicted, and all the main data were treated as independent variables and subjected to multiple regression analysis. This is a method whereby a prediction about the dependent variable can be made from several other variables considered simultaneously. The solution is given in terms of weights which need to be applied to the variables if the combined set is to give the best prediction. It also contributes towards an understanding of the relation of each independent variable to the dependent variable, indicated by the size and sign of the beta coefficients. It should be emphasized that the term "prediction" is used here in a technical sense to designate a relationship among data. The analysis cannot provide any information about actual future drinking behaviour of the children; for that one would need a longitudinal design whereby children are followed up over a period of years until they reach adolescence.

Having, it is hoped, clarified its nature and limitations, the results of the analysis are presented in Table 27. The entries are ordered in such a manner that the most important determinants are listed on top and, as one moves down, the contribution of the variables becomes progressively slighter. It is immediately evident that there are two dominant factors. First, the more the child perceives adult males to like drink (and it will be recalled that this usually refers to the father figure), the greater the probability that he will say he himself expects to drink in future. Second, the more negative an attitude he has manifested towards pictures of people drinking alcohol, the less likely it is that he will anticipate drinking in future. The next two variables concern personal contact with alcohol, and the fifth is the female equivalent of the first; all three contribute in the same positive direction, albeit only moderately. Father's drunkenness appears to have relatively slight importance, though there was the tendency already noted for children who mentioned this to say they would not drink in future. However, it should be remembered that only a fraction of the sample made any reference to their father's lack of sobriety; if it had been possible to ascertain its incidence from each case, the outcome might well have been different. The purely cognitive differences, namely IQ and the presence of the concept of alcohol, can be seen to have carried very little weight. Lastly, parental drinking habits as such were negligible in their effect on the multiple R. This does not mean that they are unimportant, but rather that their influence was almost entirely mediated by the liking scores, largely based on the parental model. The final multiple correlation of 0·4262 accounts for only some 18% of the total variance. Yet considering the nature of the sample which consisted of young children whose responses are bound to contain a great deal of error variance, and considering further the imperfect information on some of the variables such as parental drunkenness, the size of the obtained R is quite encouraging.

TABLE 27

Multiple regression analysis for predicting intention to drink

Independent variables	Simple R	Multiple R	Beta co-efficient
Adult male's perceived liking for drink	0·279	0·2793	0·206
D-score (attitude to people drinking)	−0·259	0·3662	−0·244
Whether tasted alcohol	0·151	0·3856	0·132
Recognition of alcohol by smell	0·091	0·4034	0·113
Adult female's perceived liking for drink	0·224	0·4152	0·106
Father's drunkenness	−0·015	0·4217	0·069
IQ	0·049	0·4241	0·045
Presence of concept of alcohol	0·123	0·4260	0·042
Parental drinking habits	0·197	0·4262	0·014

There were in addition some other variables which did not reach the tolerance level necessary for inclusion, and the most interesting of these is "feeling of the drunk" as imputed by the children. Each child responded to this, and it was expected to bear some relationship to the dependent variable, but this turned out not to be the case. In hindsight it is obvious that the expectation was based on unwarranted adult assumption: if consumption of alcohol makes you drunk, and being drunk is a nice feeling, then I intend to drink. In fact, the bulk of the children (other than those in the extreme groups) did not seem to know nor concern themselves much with the effects of drinking on a person's feeling and mood. Actually little more than a third of the children answered this question spontaneously, the remainder responding only to the forced choice of "sad or happy". At that stage it would seem that their reported intention to drink is governed primarily by their perception of significant models and the attitudes to people drinking derived from their social environment.

At this point it will be useful to recapitulate briefly and take stock. About six out of every ten children have tasted alcohol by age 6, and this proportion remains roughly constant throughout the age range; and more boys than girls have tasted alcohol which was given to them by the parents, mainly the father. During the same period, from 6 to 10, their attitude towards alcohol became increasingly negative, and it has been shown that this is unlikely to have been mere overt verbal compliance. Moreover, their declared intention to drink when older also diminished regularly over the same age-span.

All this would suggest a progressively smaller disposition to drink with increasing age, but we do of course know this to be false. In the adolescent study by Davies and Stacey (1972) it was found that by 14 years some 92% of boys and

85% of girls have taken alcohol, and thereafter drinking becomes increasingly common. How is this paradox to be resolved? Evidently changes are taking place between the ages of 10 and 14 leading to a complete reversal of the trend, and some inferences and speculations regarding their nature are indicated.

The most obvious explanation that comes to mind is epitomized by the phrase "adolescent rebellion", but rebellion against what? Bacon and Jones (1968) have pointed out in their American study that adolescent drinking patterns essentially reflect adult ones, regional and sub-cultural variations in adult drinking behaviour being faithfully mirrored by adolescent ones. Their conclusion is that "imitation cannot really be considered rebellion, even if it is badly timed". In the present study it has also emerged that the perceived behaviour of significant adults appears to be a key variable. Nonetheless the issue is probably more complicated than mere "imitation of parents", at least as far as our Scottish sample is concerned. While it seems to be true that some parents do little to discourage children and others import a total ban, the bulk of middle-of-the-road parents appear inconsistent in their approach. They present a model of more or less moderate drinking, and the father in particular is apt to offer children drink to taste on special occasions. At the same time he, or more usually the mother, issues dire warnings about drink and tends to utter obscure threats rather than provide rational guides to appropriate conduct. The teaching about the evils of alcohol appears to reach children in more indirect and subtle ways, which it was not possible to trace in detail, from or through such institutions as school and church which some later identify with authority and establishment. Thus when children begin to drink alcohol they conform to what their parents do and rebel against much of what they say; moreover, they clearly flout the official values of established authority, though perhaps not without some sense of guilt which seems to be particularly prevalent in the Scottish setting, irrespective of denomination.

The other factor which comes into play between the ages of 10 and 14 is the peer group. With younger children the peer group has no discernible influence; but there is evidence that it becomes powerful from about 12 onwards.* The peer group is one of the main agencies for the transition from childhood to adolescence and then adulthood. Given what Davies and Stacey (1972) call the "alcohol myth", namely the view that drinking (and smoking) are the visible signs of maturity, it is not surprising that peer group pressures should be in the direction of encouraging drinking. At the same time a note of caution is indicated here, as Davies and Stacey also show that the peer group is to some extent a self-selected one such that abstainers will tend to have fewer friends who drink, whilst heavier drinkers are likely to have friends who indulge freely. In spite of this qualification it is probably still true for the majority that the peer group exerts some pressure in the direction of drinking—one has only to think of the various social occasions when it is the "done thing" for adolescents. Davies and Stacey collected some data which, when compared with our own, provide some evidence for this. When they asked their sample who had given them their first drink, about half said it had been their parents or other relatives, which fits in well with our own data, where children mentioned parents as practically the only source. However, adolescents had in as much as one-third of all cases another source, namely boys

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*Most of the evidence comes from the United States, where "Youth culture" figures prominently. See for instance the discussions in D. A. Goslin (1969). While peer group influences are probably less extreme in Britain, there are several investigations showing their increasing importance with rising age; e.g. F. Musgrove (1964); or H. Beloff and X. Paton (1970).

TABLE 28

Development in relation to alcohol

		Ages				
		4	6	8	10	14
Cognitive		Learning about specific drinks		Operational alcohol concept	Beginnings of verbal concept	Concept fully established
Personal influences	Parents	Serve as models, but little if any specific teaching		Provide some negative information (little factual) and exhortations, often contradicted by behaviour; some children in extreme drinking or abstaining groups begin to react against parents		Decline of parental influence
	Peers	Negligible until adolescence				Peers exert Pressure towards alcohol; offer of first drink
External social influences (presumably incl. school, church, mass media)		No discernible impact		Learning of negative evaluations of alcohol and drinking on the part of authoritative persons and institutions; no trace of media effects		Negative evaluaations from authority sources discounted; mass media support for drink
Resultants	Expressed attitude to drink	?	Neutral	Increasingly negative		Positive, with residual guilt?
	Declared intention about drinking in future	?	High: will do as everybody does	Substantially declining		Majority drink

and girls of their own age or somewhat older. There is thus good reason to believe that the peer group forms a powerful influence.

This discussion has ranged rather widely, and the best way to summarize it might perhaps be to attempt the presentation of a schematic model of the development of behaviour in relation to alcohol (Table 28). In the main it is solidly based on empirical evidence. However, as so little work has been done in this sphere it was felt justifiable to round off the picture by including some inferences and guesses which, hopefully, await further confirmation.

IMPLICATIONS OF THE FINDINGS FOR HEALTH EDUCATION

The purpose of health education is to encourage moderation in the use of alcohol by young people and adults and to reduce the incidence of excessive drinking particularly among teenagers and young adults which has been increasing to an extent causing serious concern.* When considering the possible contribution of the present study, it is important at the outset to be clear about its scope and limitation. The research was designed to establish the facts about Glasgow children's concepts and attitudes regarding alcohol and drinking, and this has been achieved. While such a task constitutes an essential preliminary to action and can serve as a source of ideas, it does not by itself tell us how to influence children's attitudes and behaviour, This is not to say that the present findings fail to provide any useful guidance; on the contrary, a number of possible strategies will be discussed which are suggested by the data.

What target populations?

It has long been a matter of controversy at what age health education concerned with alcohol could be started, and the most common view has been that primary school children are too young to be able to benefit from it.† The debate has been carried out in the absence of solid empirical evidence, which is now available for the first time in the present report. It has been shown that by 8 years of age a large majority of children have attained an operational concept of alcohol; this means that they are perfectly capable of understanding communications about alcohol that do not actually use this term, but refer to beer and whisky or a similar set of specific labels. It is not suggested that alcohol education ought necessarily to start at age 8, but merely that it could do so. On the other hand, the results provide strong grounds for proposing that alcohol education ought to be started at some time during the primary school. Most children have had personal experience of alcohol during the course of their primary school years, and attitudes are beginning to take shape within a context of somewhat inconsistent influences and usually without much systematic guidance but in an environment of consistent commercial pressure. The likelihood of being able to make some worthwhile impact by means of health education during this early formative period is at least as great and perhaps greater than during secondary school, when peer group pressures and mass media combine to produce a disposition towards drinking; and as is evident from the parallel study of Davies and Stacey, patterns of drinking habits have already begun to emerge by 14. It is also implicit in what has been said so far that parents of primary school children should constitute another important target group. A further question to be considered is whether some attempts might perhaps be made to take some account of special sub-groups within the target populations, such as children from families where there is heavy drinking and who might need help with any effort to form independent views and later habits; or, at the opposite end of the spectrum, children of abstainers inclined to rebel who might be discouraged from moving too far in the other direction. The parents of both kinds might also benefit from advice. The proportion of such special categories of children in the sample was small, of the order of 5%, though this is certainly an underestimate as only quite clear-cut cases were counted; however, it should be pointed out that over the primary school population of Scotland even this would amount to more than 30,000 children.

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*Cf. Report by Scottish Health Education Unit (1969).

†Cf. *Health Education and Alcohol* (1970).

What kinds of approach?

First the question as to how the problem could be tackled with primary school children will be discussed. The results of the present study indicated very clearly that the amount of accurate information possessed by the children about alcohol was minimal. Some were able to produce stereotyped notions about alcohol being bad (e.g. "it stops you growing") for health and/or morally. This was often coupled with the belief that it is bad for children but all right for grown-ups—in fact one of the hallmarks of being an adult. A majority of the children seemed to have very few coherent ideas, though it was evident that with increasing age the topic acquired considerable emotional loading, manifest not so much by what the children said as how they said it; and this observation was objectively confirmed by indirect methods.

There is thus a need to provide more adequate information on various aspects, positive as well as negative, of alcohol. The common objections are (a) that children in primary school could not grasp such information and (b) that it would encourage premature experiment. It has already been argued at some length that (a) is based on false assumptions contradicted by the research findings. Given a suitably adapted mode of approach, it is perfectly possible to convey to an average 10 or 11-year-old some understanding of the fact that alcohol acts as a depressant as contrasted with stimulants like tea or coffee. One can also explain (though not in these words) the implications with regard to behaviour: on the one hand alcohol can produce enhanced sociability or aggression; on the other, an intoxicated driver may be unable to react appropriately in a sudden emergency. It would seem that children are not only able to grasp the essentials of this, but find it very interesting.* Although most children are aware from an early age of the causal link between alcohol and drunkenness, there was almost no indication of any knowledge of alcoholism as an illness, even among the older children. This risk must obviously be brought to their attention. The second objection above, (b), can be seen to be spurious from the present findings; if by "experimentation" the tasting of alcohol is meant (and it would be difficult to think of any other meaning), then a majority of children do experiment anyway, with the active or at least passive consent of their parents; and it is surely preferable that they experiment with some knowledge than without any.

The provision of information is undoubtedly important, but it is not enough. The topic of alcohol soon becomes tinged with traces of conflict and guilt, due to the contradictory evaluations children encountered in different compartments of their social lives. Their future behaviour in relation to alcohol is likely to be in part a function of information, but probably only a small part. In the main it will be determined by the kind of person they aspire to be, the models they choose to follow and the social pressures they accept or reject. This is an area in which it is difficult for health education to operate. Sermonizing is not only undesirable, but may well undermine the credibility of the source of information and thereby prove self-defeating. One could attempt to frighten children with the spectre of an alcoholic wreck, and fear appeals are not infrequently used in health education. Unfortunately research* has shown that their effectiveness varies widely according to topic, situation and population. Fear appeals sometimes boomerang, leading to avoidance of those who gave the fright rather than of the harmful object; and one suspects that this might well happen with children and alcohol.

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*These remarks are somewhat tentative, being based on informal sessions with only a few children. Before a programme could be based on this, a more carefully planned and systematic feasibility study would be desirable.

One objective should be to weaken the link in children's minds between consumption of alcohol and maturity, perhaps by learning that children in some countries are allowed to drink in moderation, while everywhere there are many adults (including great and famous) who prefer not to take alcohol. General themes of this kind might be developed in an effort to "inoculate" (as McGuire (1968) calls it, using a medical analogy) children against persuasive pressures to which all of them are likely to become exposed in varying degrees. At the core of many of these influence attempts will be the suggestion that "everybody does it", and possibly also that "manliness' is a function of prowess in consuming alcohol. The nature of such influence pressures ranging from overt to subtle might be explained and exposed by caricaturing them. This must be done before their impact becomes really effective, and that means in the primary school.

There is no doubt that such an approach to health education would be difficult and demanding, calling for considerable skill and resources. It would not be enough to use films, TV presentations or leaflets (though these could certainly play a part) or even to talk to children—they would have to be actively involved. The findings of the present study indicate that, although children lack information about alcohol, the subject is one charged with a certain amount of emotion and there is thus not likely to be any lack of interest. Children at present have little opportunity to talk about alcohol with anyone; parents, who might be thought the appropriate people, are in fact sometimes at the root of conflicts experienced. For the minority of children who appear seriously worried about alcohol, a chance to talk about it in a permissive atmosphere would in itself be a considerable help.

Secondly, consideration of the other target group, namely parents, needs only brief comment, since the most profitable line to be taken is implicit in what has already been said. In essence, parents need to be made aware of the confusion and concern they may cause in their children by the discrepancy between their behaviour and the moral injunctions or warnings they may issue. It could also be pointed out that a statement about alcohol being bad for children but good for adults, whilst seeming to resolve the conflict, may in fact lay trouble in store for the future. The best suggestion would perhaps be for parents to discuss the issue with even young children as fully and frankly as possible. The function of health education would be, first, to provide more factual information for the parents themselves and offer some guidelines about optimal approaches suitable for children of different ages.

Who should do it?

This is a tricky question, and it is easier to say who ought *not* to than to make constructive proposals. The development of attitudes traced in the present study is one from predominantly open acceptance of alcohol at age 6 to somewhat furtive and ambivalent negative attitude by age 10. It was not possible to identify precisely the sources of this change, but there were sufficient indications pointing towards what might be called in the current jargon "the establishment", i.e. institutions like school and church. Whether or not they were correct, children seemed to believe that people representing these institutions condemn alcohol; and in the course of development they took over, in part, such negative evaluations as being socially approved. It is also known from studies of adolescence that values associated with institutions like school or church later come to be actively rejected by many adolescents.

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*Cf. H. Leventhal (1970).

If this analysis is broadly correct, it follows that the teacher is not a suitable person to undertake health education on alcohol with primary school children. This is because the teacher is associated with the very kind of authority and institution whose values come to be questioned. Thus the health educator on alcohol should be, and be seen to be, a detached neutral. This should also be obvious from the content of his communications, covering positive as well as negative aspects. Such a role could be taken most easily by an outsider coming to the school, but a single appearance would not do. Children must have an opportunity to become familiar with the outsider, and he must have time to gain their confidence. Otherwise the kind of mutual interaction required could not be achieved.

The discussion so far has been exclusively confined to health education concerned with alcohol, but only because this was the major focus of investigation. In fact, a certain amount of material was also collected on smoking which indicates, like the parallel adolescent study by Davies and Stacey, that there is a good deal in common in the development of attitudes relating to alcohol and smoking (cf. Appendix D). Moreover, it is doubtful whether it would be wise to concentrate entirely on issues which entail elements of conflict and guilt for some, as seems to be the case with alcohol. Thus there is much to be said for the view frequently expressed by health educators that a campaign or, preferably, a continuous programme should not deal with alcohol and smoking in isolation; rather these topics should be embedded in more emotionally neutral contexts such as dental hygiene, food, etc.

Before concluding, a disclaimer and a plea. The broad suggestions for a strategy of health education dealing with alcohol are based on both the researchers' experience while carrying out the project and what appear to be the implications of the findings. While they are intended to be helpful, no special authority is claimed for them. It may well be that competent and experienced health educators perusing the present report will draw rather different conclusions; they may be right—or wrong. The only safe way to arrive at a judgment is to embark on some field experimentation. This means trying out two or more alternative strategies with equivalent samples of children and assessing the outcome by suitably devised empirical methods. While this may be expensive in resources in the short run, a yardstick of this kind is almost certain to yield savings in the long run by avoiding the commitment of resources on procedures which may well be completely ineffective. No one acquainted with the formidable problems of this kind of work will be sanguine enough to expect dramatic results. However, it is preferable to make slow and steady progress employing such an experimental approach with monitoring of results, rather than engage in spectacular ventures whose outcome cannot be evaluated.

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APPENDIX A

Verbal Instructions Accompanying Procedures

Recognition of smells

The experimenter presents the box containing the bottles and introduces the task as follows:

"In here are some bottles with different things inside. I want you to smell each one and tell me if you have ever smelt it before."

The bottles are presented to the child one by one with the accompanying question,

"Have you smelt this before?"

Depending on his response, the bottle is placed in one of two groups: those he recognizes or those he does not. When the task is complete the non-recognized group is set aside and the other group indicated.

"Those are the ones you have smelt before. Now I want you to tell me something about each one."

Each recognized smell is presented once more with the instruction,

"Tell me something about it."

This is followed by a set of questions to elicit further information about the liquid.

"What's it for? Do you like it? Where have you smelt it? Who uses it?"

All the responses and information are recorded.

Judgment of photographs

Four boxes are placed side by side in front of the child. They are labelled, "like very much", "like a little", "dislike a little", "dislike very much" in sequence from left to right. The child learns how to respond as follows:

"Here are four boxes. Each one has a different answer on it. One answer is 'like very much', another is 'like a little', another is 'dislike a little', another is 'dislike very much'" (E points to the appropriate box for each answer).*

"Into which box would you put something you liked very much?"

If the child indicates the correct box he is asked about the other boxes in the same way. Training continues until he can indicate the correct box for something he likes very much, likes a little, dislikes a little and dislikes very much.

---

*With the youngest age-group a modification is employed. The labels for this group are L l d D and training is as follows: "Here are four boxes. Each one has a different answer on it. One is big L, another is little l, another is d and another is D" (E points to appropriate box for each answer). "L stands for something you like very much, l stands for something you like a little, d stands for something you dislike a little and D stands for something you dislike very much." Thereafter training continues as above.

The child is now trained for the task as follows: "I'm going to show you some pictures of people doing different things. Some of them are nice and some aren't so nice. I want you to put each one into the box that says what you feel about him."

He is presented with the four training photographs, each accompanied by an instruction,

"Here is a picture of a man reading a newspaper.* Put him into the box that says what you feel about him."

The main task follows with E's instructions: "I'm going to show you more pictures and each time I want you to put it into the box that says what you feel about him. Some of them are nice and some are not nice. Put them into the boxes that say what you think."

The set of photographs is presented one by one and the judgments recorded.

Perceived likes and dislikes

The child is trained to use an apparatus on which to register his responses. This consists of a box with four windows labelled "like very much", "like a little", "dislike a little" and "dislike very much". Each window has its own button which, on pressing, sounds a buzzer and lights up the appropriate label. The training procedure is as follows:

"Here is a box with four windows. Each window has a different answer. One answer is 'like very much', another is 'like a little', another is 'dislike a little' and another is 'dislike very much'" (E points to the appropriate window for each answer).†

"Each answer has its own button that lights up and buzzes when you press it. Which one would you press if the answer was 'like very much'? Which one would you press if the answer was 'like a little'? Which one would you press if the answer was 'dislike a little'? Which one would you press if the answer was 'dislike very much'?"

The child is allowed to press each in turn and training continued until he learns the appropriate responses.

E continues with the instructions,

"People like to do some things and don't like to do other things. Here is a little boy (or girl)—somebody like you." (A doll of the appropriate sex is placed in front of the subject at the side of the response box.) "Now you're going to hear lists of different things that people do and I want you to tell me what things you think the little boy likes to do and what things he doesn't like to do by pressing the button that says what you think."

"Which one would you press if he likes to do something very much? Which one would you press if he likes to do something a little? Which one would you press if he dislikes it a little? Which one would you press if he dislikes it very much?"

"Now here is the list of things that people do. After each thing I want you to press the button right away that says what you think the little boy, like you, feels."

---

*Of "a lady drinking a cup of coffee", "a man smoking a pipe", "a lady eating a sandwich".
†The same modification for the youngest age group applies in this task as in the previous one.

The child listens to the practice list and if he responds appropriately, he continues with the main task.

After this part, a female adult doll is placed in front of the child. "Here is a lady. I want you to tell me what things you think she likes to do and what she doesn't like to do, by pressing the buttons again. Press the button that says what you think a lady feels about these things."

The child listens to the practice list and then the main list. After this part, the female doll is replaced by a male adult doll. "Now here is a man. This time I want you to tell me what things you think he likes to do and what he doesn't like to do. Press the button that says what you think a man feels about these things."

The list is repeated once more and the child's responses noted.

Concept task

The concept-training task is introduced as follows:

"Here is a box with different kinds of food inside. I'm going to show you two things and I want you to guess which one I'm thinking of."

The orange and the roll are presented. If the orange is chosen his choice is reinforced—"Yes, that's the right one." If the roll is chosen, he is corrected, "No, it's not the roll—the orange is the right one."

"Now I'm going to show you two things at a time and I want you to try and work out what the right one is each time."

The apple and egg are presented.

"Which is the right one?"

The fruit response is reinforced and the correct one indicated if the child makes the wrong response. The objects are presented two at a time and the fruit response is reinforced. When the child reaches the criterion of learning the food is grouped into two groups by the experimenter, "fruit" and "other", and the child is questioned about the grouping.

"In what way are all these things the same as each other in some way (E indicates group of fruit) and different from those (E indicates 'other' group)?" If no explanation is provided by the child, the experimenter explains "All this is fruit and this is not." This is followed by additional questioning,

"Have you tasted all those things?"

The child is reminded of the two groups.

"We have two groups of different things to eat—this is fruit and this is not fruit."

The experimenter proceeds to the next task.

"I'm going to show you some bottles of different things to drink and I want you to put them into two groups like we did with the food so that one group is different in some way from the other group."

The bottles are placed in front of the child and he is instructed as follows:

"Put these into two groups so that there is the same number in each group and one group is different in some way from the other group."

The child is asked to explain his grouping "In what way are those (E indicates one group) the same as each other but different from the other group?"

If the child fails to group them or groups them on any criterion other than alcohol, the experimenter regroups them into alcoholic and non-alcoholic drinks and the child is asked to explain the grouping. "In what way are those (E indicates alcohol group) the same as each other but different from the other group?"

The experimenter continues to question the child about various aspects of alcoholic drinks.

"Where have you seen these kinds of drinks? Who drinks them? Who told you about them? Which of these drinks have you tasted? Do you think you'll drink them when you are older?"

This is followed by the animal-grouping task. The animals are presented and the child is instructed as follows:

"Now I want you to do the same thing with animals. I want you to put them into two groups so that one group is different in some way from the other group." Whatever his grouping he is asked to explain it.

"How is this group different from that group?"

Drunkenness film

This task is introduced as follows:

"You're going to see some films of people doing different things. I want you to watch carefully and then tell me something about what the person is doing and what you think of him."

The child is first shown part D of the training film followed by the questions,

1 "What's he doing?"

2 "What do you think he's been doing just before we see him there?"

Part CD is then shown introduced by the experimenter, "Now we'll have a look at what was happening just before."

If the child provided no satisfactory answer to 1 and 2, these questions were repeated and the questioning continued.

3 "Now tell me what you think of him?"

"Do you think he's nice or not very nice?"

Part BCD is shown, followed by

4 "How do you think he feels?"

"Is he happy or sad?"

5 "When do people look like that usually?"

The drunkenness film is presented according to a similar procedure, the final question (5) in this case being,

> "Have you seen anybody like that? Where? Has anyone told you about people like that?"

The complete film ABCD is run through with children who have still not given satisfactory explanations of the behaviour depicted by BCD.

The third film is shown and the child questioned in a similar way.

APPENDIX B
Photographs used in Judgments

Each child judged two sets of 24 photographs (20 plus 4 repeats). Table 29 lists the activities depicted in the photographs. Each person appears in one set engaged in one activity and in the second set engaged in another activity Table 30 shows the

TABLE 29
Activities in photographs

a	playing with cards
b	playing a trumpet
c	eating an apple
d	drinking from a "short" glass
e	reading a newspaper
f	drinking milk
g	eating with knife and fork
h	drinking beer
i	smoking a pipe
j	smoking a cigarette
k	reading a book
l	eating a cake
m	brushing hair
n	telephoning

TABLE 30
Repeated photographs

Person No.	Set I				Set II			
	Activity	Repeat A	Repeat B	Repeat C	Activity	Repeat A	Repeat B	Repeat C
1	k		√	√	f		√	
2	h				n			
3	d				l			√
4	j				m	√	√	
5	l	√			j			
6	m		√		n			
7	n				d			
8	n				h			
9	f	√		√	j			
10	d				k	√		√
11	a		√		c		√	
12	b			√	i			
13	c			√	b			√
14	d				f	√		
15	e	√			d			
16	f		√		j			
17	g	√			h			
18	h				a		√	
19	i				d			
20	j				g	√		√

Persons 1–10: Female; persons 11–20: Male.

activity of each person in each session, indicating the photographs which are repeated for consistency scores. Table 31 lists the three random orders of presentation for each set of photographs. The actual photographs used in the judgments are depicted in Fig. 9, showing the activities of each person in each session as set out in Table 30.

TABLE 31

Three different orders of presentation in sessions 1 and 2

Order of presentation	Set 1			Set 2		
	A	B	C	A	B	C
1	16f	1k	13c	1f	4m	3l
2	5l	15e	7n	20g	18a	13b
3	20j	6m	4j	16j	11c	5j
4	17g	2h	12b	10k	7d	17h
5	18h	16f	1k	15d	12i	2n
6	4j	7n	14d	13b	1f	20g
7	13c	20j	5l	4m	2n	10k
8	9f	13c	19i	14f	16j	15d
9	3d	10d	15e	17h	17h	9j
10	15e	9f	3d	5j	10k	6n
11	19i	18h	9f	2n	*18a	14f
12	7n	*1k	*12b	18a	13b	16j
13	11a	11a	2h	7d	5j	7d
14	14d	12b	*13c	*4m	15d	1f
15	6m	5l	17g	12i	6n	18a
16	2h	*6m	6m	*14f	8l	12i
17	1k	14d	16f	8h	8h	4m
18	*15e	*16f	10d	3l	14f	8h
19	*17g	4j	11a	11c	*4m	11c
20	8n	8n	20j	9j	19d	*10k
21	10d	3d	8n	19d	9i	19d
22	*9f	19i	18h	6n	20g	*3l
23	*5l	17g	*9f	*20g	*11c	*13b
24	12b	*11a	*1k	*10k	*1f	*20g

*Repeated photographs.

APPENDIX C
Activities used to determine Likes and Dislikes

Table 32 shows the two lists of activities used in this task, each subject being presented with a selection from one of the two lists in session 1 and a different selection from the same list in session 2. Table 33 presents the two randomly chosen orders of presentation for the lists A and B of each session. The repeated activities are indicated.

TABLE 32
Activities

Activity	List A	List B
a	doing the cooking	†eating chocolate
b	*going to school	going to the zoo
c	*digging the garden	*going to the shops
d	eating carrots	drinking tea
e	smoking a cigarette	going to a football match
f	being punished	*eating cabbage
g	playing with marbles	playing with guns
h	*drinking coffee	doing the cooking
i	painting the house	*mending a bike
j	†being nicely dressed	†being punished
k	†knitting	*drinking milk
l	*eating ice-cream	being surprised
m	going to work	playing at skipping
n	drinking orange juice	taking medicine
o	mending a car	eating fish
p	playing with dolls	being nicely dressed
q	eating stew	digging the garden
r	being surprised	smoking a pipe
s	sewing on buttons	going to church
t	drinking milk	washing up dishes
u	†drinking beer	†drinking beer
v	†drinking whisky	†drinking whisky
w	going to the pub	going to the pub
x	being drunk	being drunk

*Repeats Session 1.
†Repeats Session 2.

TABLE 33

Session 1				Session 2			
List A		List B		List A		List B	
Order (1)	Order (2)	Order (1)	Order (2)	Order (1)	Order (2)	Order (1)	Order (2)
a	b	a	t	b	a	a	d
b	i	b	o	k	p	j	m
c	h	c	s	q	j	d	w
d	j	d	d	u	w	x	q
e	l	e	g	r	h	c	a
f	s	f	i	o	c	i	j
g	t	g	f	l	f	u	v
h	k	h	h	v	v	g	i
i	d	i	j	j	k	t	c
j	f	j	c	q	o	e	x
k	c	k	k	w	u	v	f
l	*b	*c	*i	e	g	f	e
m	n	l	r	a	e	q	t
n	a	m	*f	c	x	*j	u
o	q	*i	m	f	q	w	*j
p	m	n	p	*u	s	k	*a
q	p	o	b	h	*j	b	k
r	*c	p	e	s	*v	*v	*u
*c	*h	q	n	x	t	r	b
*h	r	r	*c	p	b	p	p
*b	e	s	*k	*j	r	n	g
*l	*l	t	q	*v	*u	*u	*v
s	o	*f	l	*k	*k	*a	r
t	g	*k	a	t	l	m	n

*Repeats.

APPENDIX D
Analyses of Responses Relating to Smoking

1 Judgments of photographs

The mean D-scores for pictures showing people smoking are presented in Table 34, and the corresponding analysis of variance in Table 35. The youngest

TABLE 34
Means and standard deviations of D-scores

Boys

	Ages					
	6 years		8 years		10 years	
	Mean	SD	Mean	SD	Mean	SD
Photographs of men	45·45	9·58	51·62	9·88	55·07	10·30
Photographs of women	45·35	9·64	51·72	9·27	55·22	8·18

Girls

	Ages					
	6 years		8 years		10 years	
	Mean	SD	Mean	SD	Mean	SD
Photographs of men	45·25	9·69	49·30	10·03	52·32	10·64
Photographs of women	45·80	11·29	52·12	9·42	57·52	10·03

TABLE 35
Analysis of variance of D-scores

Source	SS	df	MS	F	*P*
Between subjects					
Age (A)	7429·45	2	3714·72	24·39	0·001
Sex (B)	15·05	1	15·05	< 1	NS
AB	24·65	2	12·32	< 1	NS
Subjects within groups	35639·3	234	152·30		
Within subjects					
Sex of smoker(S)	253·75	1	253·75	6·02	0·025
AS	120·05	2	60·02	1·42	NS
BS	236·60	1	236·60	5·61	0·025
ABS	96·90	2	48·45	1·15	NS
Subjects within groups	9858·19	234	42·12		

children's judgments were only slightly on the negative side of the neutral point, but disapproval increased markedly and highly significantly at each successive age level. There was also a significant interaction between sex of judge and sex of smoker portrayed: while boys did not differentiate according to sex in their judgments, girls indicated less dislike of male smokers and more of female ones.

2 Perceived likes and dislikes

The mean perceived liking scores are given in Table 36. It will be noted that numbers in the age/sex subgroups were not constant, owing to an unbalanced distribution of smoking items over the different lists. It was therefore necessary to carry out analyses of variance separately for boys and girls, equalizing cell entries by random elimination; these analyses are shown in Table 37.

TABLE 36

Mean liking scores by age and sex

Boys

	Ages					
	6 years ($N = 25$)		8 years ($N = 27$)		10 years ($N = 29$)	
	Mean	SD	Mean	SD	Mean	SD
Child	14·00	8·77	12·03	4·65	10·51	2·04
Female Adult	12·41	11·94	20·18	9·45	18·79	9·60
Male Adult	30·23	10·25	25·18	11·13	23·27	10·87

Girls

	Ages					
	6 years ($N = 13$)		8 years ($N = 14$)		10 years ($N = 14$)	
	Mean	SD	Mean	SD	Mean	SD
Child	13·07	5·60	11·42	3·05	11·42	2·34
Female Adult	21·15	11·92	19·64	11·00	16·78	9·11
Male Adult	26·15	11·57	26·78	12·34	19·64	8·65

Inspection of the means indicates that children tend to attribute greater dislike with increasing age, irrespective of role; this trend falls short of significance, though one suspects that it would have been reached in an analysis where the sexes were combined. The major and highly significant effect is that of role, for both boys and girls; thus children were perceived as disliking smoking intensely, adult males as liking it and adult women occupying an intermediate position slightly on the negative side.

TABLE 37

Analysis of variance of liking scores

Boys ($N = 75$)

Source	SS	df	MS	*F*	*P*
Between subjects					
Age (A)	578·66	2	289·33	2·35	NS
Subjects within groups	8838·67	72	122·76		
Within subjects					
Role (R)	8152·67	2	4076·33	60·59	0·001
AR	76·66	4	19·16	< 1	NS
Subjects within groups	9687·33	144	67·27		

Girls ($N = 39$)

Source	SS	df	MS	*F*	*P*
Between subjects					
Age (A)	364·53	2	182·26	1·72	NS
Subjects within groups	3816·67	36	106·02		
Within subjects					
Role (R)	2996·58	2	1489·29	19·46	0·001
AR	162·39	4	40·59	< 1	NS
Subjects within groups	5541·03	72	76·96		

APPENDIX E
Details of Film Sequences

Film 1: Happy child

A Boy in shop choosing toy;

B Boy receives parcel from shop assistant, with happy expression on face;

C Mother and child walking out of shop, boy smiling with parcel under his arm;

D Mother and child walking hand in hand, boy smiling.

Film 2: Drunk man

A Man in pub drinking whisky and picking up glass of beer;

B Close shot of man draining beer glass and staggering from bar;

C Man staggering out of pub door (external shot);

D Man staggering along road.

Film 3: Exhausted man

A Man in gymnasium lifting weights;

B Man putting down weights and walking listlessly out of gym;

C Man entering dressing room and collapsing on bench;

D Man wiping brow looking exhausted.

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